



Computer Weekly

Thursday, October 21, 1982

Amdahl delivery delay hits profits

by Kevan Pearson

TECHNICAL problems which caused a six-month delay in the delivery of Amdahl's 58/60 IBM-compatible mainframe have caused a massive drop in the company's profitability.

And in the short run, the problems are not over. Amdahl has just announced that early shipments will not meet their performance specifications in some applications. Normal transaction and Cobol processing will not be affected, says Amdahl UK managing director Terry Pasola. He denied that the problems were serious, or that they would cause further delays in delivery schedules.

Amdahl's third quarter profits crumbled to 8% of the comparable profit for 1981. Profit for the quarter stood at \$630,000 compared with almost \$7.5 million last year. This brings the profit to date for 1982 to \$4.1 million, compared with almost \$20.5 million in the first nine months of 1981. It was Amdahl's fourth quarterly profit decline in a row.

John Lewis, Amdahl's president, blamed the result on the usual crop of economic problems, and the production costs of the 58/60.

Amdahl has just started to ship the machine, and has said that the two engineering changes needed to bring it up to its specification will be fitted in the field to the 20 or so



PASOLA . . . problems are confined to Fortran processing.

Viewdata shopping in market research trial

by Donald Kennett

THE effectiveness of electronic shopping by viewdata is to be tried out in January by AGB Cable & Viewdata, the two-month-old subsidiary of market research firm Audits of Great Britain which has been set up to specialise in interactive services on wideband cable networks.

In the absence of a wideband cable network right now, the new company is using viewdata as its medium. Its first move has been to take over the television audience response projects set up by its parent with Granada Television and Channel 4.

The next is to set up an electronic shopping trial based on 50 Xylyx public access viewdata terminals linked to the viewdata bureau service run by another AGB subsidiary, Hanger Lane Computing. The terminals are to be installed in high-street outlets and will be used in conjunction with printed mail order catalogues.

LINE NOISE

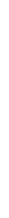
IBM will now launch the first model in its Olympia range of machines in late November. Two provisional launch dates for the 2.5 million instructions a second processor, designed to fill the gap between the top 4300 machine and the low end 3083E, have been set for November. And there could be a 3.5 mips Extended Architecture machine, following up next spring, along with a new disc system for the new range.

HEWLETT-PACKARD'S awaited 32-bit computer system is due to make its worldwide debut in mid-November. It is based on the 32-bit microprocessor chip set unveiled last year, early in the rush of 32-bit chips from computer and semiconductor manufacturers, and should put in an appearance at this year's Comdex exhibition.

DIGITAL RESEARCH, producers of arguably the world's most popular micro operating system, CP/M, has been seen talking to MicroFocus, producer of arguably the world's best micro Cobol software. No prizes for guessing what the talks have been about. Gary Kildall, the man behind CP/M, is in London today (Thursday) to unveil no fewer than six new CP/M products and to reveal Digital Research's plans for the European market now it is setting up its own over here.

US semiconductor firm Intel, fresh from selling process technology to IBM, will sign a similar deal with Philips next week. The move involves Intel's new CMOS process and the single-chip microcontrollers released as the first part of its new technology.

"Please! Wanna buy a new IBM 3033U at up to 60% of IBM list?" This is not fiction. Details have leaked out about an amazing deal between IBM and Comdisco, for the latter to take "a substantial number of 3033s". Unfortunately IBM's standard non-disclosure agreement came into force as the deal was signed. However, discounts of up to 60% have been mentioned in the same breath as the deal.



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Computer Weekly

Thursday, October 28, 1982 Number 832 35p

Mascom's users are rescued

by John Kavanagh

THE death of one Data General systems house in Bradford has brought new life to another, which has taken over its customer base of some of its staff.

The 50-plus users were left without support when the new took Mascom Systems over in June. But waiting in the wings Datavision, formed in 1978, is dormant since its founder, Dr. Frederick Wood, cited the figure at last week's presentation of the NRDC annual accounts, and so confirmed a view common among private financiers who have been approached for funds for Inmos. The government has made clear that no more State funds will be made available.

City brokers and bankers had arrived at a figure of about £40 million as the money required to get Inmos to its full scheduled production of 64K and 16K chips.

It is not the size of the sum that has put the City off, however, but the risks surrounding the chip market.

The 64K chip which the company is now bringing into production is arriving at a time when there is a surplus of capacity, at least in the West, and a number of US companies, including Intel and Texas Instruments, have been laying off workers in the face of the slump in demand.

Widespread reports that the Japanese had captured up to 70% of the 64K RAM market were gross exaggerations of the first few months of a new market, and many observers expect the situation to normalise as volume builds up.

Even so Inmos has been slow to get production ramped up. The company has taken nearly twice as long as typical US silicon chip start-ups.

Sir Frederick is thought to have asked the government to permit him to use the proceeds of the sale of other BTG companies to fund Inmos through to next year, when he thinks that private funds will be available.

One possible candidate for sale is the Inmos factory in Colorado, but soundings among potential buyers made in California last year did not produce a satisfactory result.

However, one of the top line printer distributors, Alveronic Computer Systems, says the market is being cleaned up as small disreputable dealers go to the wall because of the recession. Alveronic distributes Dataproducts line printers and is a DEC authorised computer distributor.

"Dataproducts has cleaned up its market in the UK in the last two or three months. At the same time the recession has cut the dealers' already tight margins and they are now fizzing out."

● News analysis: Cowboys ride roughshod, page 8.

'Inmos will need £50 million to survive'

by Kevin Cahill

INMOS will need at least £50 million, possibly more, if it is to become a viable international producer of microprocessors. Sir Frederick Wood cited the figure at last week's presentation of the NRDC annual accounts, and so confirmed a view common among private financiers who have been approached for funds for Inmos.

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"Xerox stores have been offering Diablo printers at very aggressive prices".

Fly-by-night dealers taint terminal trade

by John Kavanagh

THE terminal business is getting a cowboy image, with manufacturers turning a blind eye to the activities of fly-by-night dealers. That is the view of Diablo printer distributors, which say they are being undercut by the manufacturer's parent, Xerox. The authorised Diablo distributors say Xerox is selling the printers to dealers at cut rates.

Con Driscoll, chairman of the Diablo distributor Zyglo Dynamics, agreed. "We have had some difficulty with the sale of Diablo printers through stores," he said. Managing director John McLean said Zyglo had come across a case of a customer being offered a Diablo unit at under £1,100. "I suspect Rank Xerox has been embarrassed by big stocks," he said.

At Rank Xerox, A. Rank X. K. Herringham, programme manager for microcomputers, denied that special deals were being done.

"Our prices are unchanged since November 1980," he said. "Dealers can buy the 630 model at £1,590 with a microcomputer. Discounts to these dealers could typically be 30%, putting the price at over £1,100. The end user price for the printers on their own starts at £1,690. There might occasionally be discounts for particular orders but our general policy is not to discount."

Herringham was contradicted by a salesman at one of the Xerox stores in London. In response to a simple telephone enquiry the salesman offered to look into the matter.

He insisted he had no argument with his supplier, the manufacturer Diablo, but "only with Xerox."

Authorised distributors are angry that small-time dealers can get big-name products at cut rates from various sources, sell them to small businesses and then disappear. The top distributors say even the best products can soon get a bad name from such practices. That bad name then rubs off on the reputable companies.

Meanwhile, the Dataproducts line printer distributor Alveronic believes the top end of the market is settling down. "Users have learnt their lesson from dealing with cowboys who try to sell these big printers off the shelf," said Alveronic director Barry Smith.

"Dataproducts has cleaned up its market in the UK in the last two or three months. At the same time the recession has cut the dealers' already tight margins and they are now fizzing out."

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News Analysis 8
Software File 9
Micro News 10
Company News 12
Profile/Platform 14
Downline 14
Leaders, Letters 15
Liveware File 15
Workplace, Puzzles 16
Development Aids 18/19
Products 21
Community of Future 22/23
Marketplace 24/25
People/Diary 26
Sales Bit 45
Line Noise 48

Wood sees uncertain future for the NRDC ... 5
Wholesale upgrade of the CP/M system 9
Praise for fourth generation languages 18/19
Job Vacancies 27/27

Japanese giants link for super computer

by Kevan Pearson

FOUR Japanese giants have joined forces to build by 1986 a supercomputer which will be up to three times as fast as any now in production.

Japan's PTT, Nippon Telephone and Telegraph, and Japan's three largest computer makers, Fujitsu, Hitachi and NEC, have formed a joint venture to develop a high speed machine with three times the processing capacity of Fujitsu's M380, already the largest uniprocessor in the world with a speed of 15 mips (millions of instructions per second).

The Japanese have issued a standing invitation to European and American companies to contribute to the project.

The machine will not be a true fifth generation machine, but will be what a Hitachi spokesman described as a "4.5 generation" computer, making heavy use of VLSI technology, such as 256 Kbit memory chips, while retaining conventional computer architecture.

The machine is timed to appear in 1986 and should be commercially available in 1987.

It will function in the 40 to 50 mips range, and will find itself competing with offerings from IBM and Gens Amdahl's Trilogy Corporation.

IBM is expected to announce its Sierra to replace the 308X range in 1984, for delivery in 1986/7. This is likely to extend the power of IBM's machines into the same power-range.

Amdahl says his company will deliver its first production machines in 1984.

Apple boom

MICROCOMPUTER company Apple is booming, with profits up 56% for 1982. Annual results released late last week showed sales had jumped 74% from \$334.8 million last year to \$583 million for the year ended this September.

Profits increased from \$39.4 million in 1981 to \$61.3 million.

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CP/M firm to set up in Europe

by Claire Gooding
MAJOR US microsoftware company Digital Research is to set up in Europe.

The company's operating system, CP/M, currently dominates the single-user microcomputer field and Digital Research last week announced a string of enhancements under the label CP/M plus.

Already Digital Research has signed major deals with CII-Honeywell Bull and with ICL to emphasise its commitments to local service and support for users in Europe.

CHI-HB is to run the CP/M-8 operating system on its recently announced Micro 9050 microcomputers, and will be evaluating the concurrent and multi-user versions. ICL is running the updated CP/M version 2.2 and the revamped multi system MP/M II on its Personal Computer, based on Rain's Black Box.

CP/M 2.2 is also available on ICL's DRS20 distributed system, and both CP/M-8 and MP/M-8 are being considered as options for use with ICL's 16-bit versions of PC and DRS20 programs.

"We consider Europe as a very explosive market in the next three years," said Digital Research founder Gary Kildall. "We are heading for the next level with an integrated family of operating systems from single user up to networking, along with tools and language to improve applications."

The European office will open on January 1, 1983 in Newbury, Berks, headed by ex-Electronix

man Paul Bailey. Bailey predicts that Digital Research's business will double next year, and again the year after, as the company broadens its offerings of OSs and languages and expands into graphics.

Digital Research follows close on the heels of its main competitor Microsoft, which set up its European operation in Berkshire last month.

Microsoft's MSDOS and Digital Research's CP/M-8 OSs are already vying for the position "de facto standard" for the 16-bit machines.

IBM's Personal Computer runs both OSs and the battle will almost certainly be decided on the selection of applications available with the OSs, and the tools and facilities offered by the OSs themselves.

Digital Research is spearheading its entry to Europe with the announcement of full graphics facilities with a range of CP/M operating systems. Both Kildall and Bailey see business graphics as a vital element in winning a new class of end users to their systems, and by getting in early on the graphics boom. Digital Research hopes to establish its own graphics strategy as soon as possible.

The first graphics products will be the result of a joint development project with Graphic Software Systems of Wilsonville, Oregon. They will be GSS-Kernel, a 2D graphics subroutine library, the GKS Graphical Kernel System, and GSS-Plot for produc-



McGLADDERY... "Planning significant staff increases".

'Boom time for DEC software houses in UK'

by John Kavanagh

UK SOFTWARE HOUSES

specialising in Digital Equipment systems could be in for a boom when the minicomputer giant publishes its first UK software directory next month.

That is the view of Ritchie McGladdery, head of Filetab Support Services, which has had its RPL, Rapid Programming Language and RQL Rapid Query Language accepted for the directory.

But Filetab's claim to the ownership of RQL is in doubt. For the product is at the heart of a royalties and ownership lawsuit involving the company and the National Computing Centre. The NCC has told DEC of the dispute and was concentrating on its DEC and IBM markets.

This year McGladdery is aiming at £500,000 turnover, a two-thirds increase on last year. Filetab has around 300 users, mainly in the UK.

Producers in the directory will be paid by DEC, which will also provide basic support, calling on the supplier for help with more complex problems. McGladdery said Filetab would aim more at building customised RPL and RQL systems and at existing DEC customers seeking to add new facilities. He saw no conflict with DEC.

"This will have a substantial

effect on our growth and we have revised our business plans upwards," said McGladdery. "We are planning significant staff increases."

McGladdery said DEC's stamp of approval could also bring big overseas sales; at DEC subsidiaries in other countries were producing their own software directories. The effect was expected to be so great that Filetab had postponed plans to put RPL and RQL on other manufacturers' machines and was concentrating on its DEC and IBM markets.

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"This will have a substantial

impact on us.

Advertising

by Howard Karten

ALTHOUGH Viewdata has yet arrived as a commercial reality in the US, recent developments in the advertising world appear to hold out the promise of speedily up its development.

A viewdata trial now takes place in Ridgewood, New Jersey, sponsored jointly by AT&T and CBS Broadcasting, has attracted many women at all try to become microtechnicians.

"There's a great untapped re-

source here, because the women

who are not afraid to have a try in many cases do better than the men," said Newton.

Women graduates from TOPS courses run by the Control Data Institute tend to get jobs as programmers more quickly than men.

Students will have tutorials, practicals, site visits and meetings with women who have completed re-training and have gone on to various jobs in the industry.

"Many women don't realise the potential for part-time work in computing," said Joan Robertson, of Control Data.

"They think it creates a good working environment and they aren't worried about them leaving to start a family, because the turnover of programmes is pretty rapid anyway."

Women analysts had a harder time, however, because employers were not so keen on older women who already had domestic ties.

The course will tackle the prob-

lems of changing jobs and return-

ing to work.

Women under 35 will be eligible

for a government grant for the course.

Students will have tutorials,

practicals, site visits and meetings

with women who have completed

re-training and have gone on to

various jobs in the industry.

"Employers seem to like the idea of having women on the staff.

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were not so keen on older women

who already had domestic ties.

This is probably wrong on

their part, though, because those

women are often particularly loyal

to their employer.

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UK 16-bit micro market 'to hit 60,000 next year'

Up to 60,000 16-bit microcomputers could be shipped in the UK next year. The market will be spurred by the arrival of IBM and Digital Equipment offerings in large quantities, with estimates that each company could ship 20,000 of the machines to UK users in 1983.

These are the back-of-envelope estimates of Applied Computer Technique's managing director Roger Foster, who sees the ACT Sirius leading and then riding in the boom in 16-bit microcomputer shipments.

Over 3,000 Sirius machines have been sold by ACT so far this year, and Foster reckons the number could reach 10,000 in 1983.

But Foster's interest is more in the software for the 16-bit machines. ACT formally announced its Pulsar family of integrated business software in London last week, and Foster said he expected ACT to become the No 1 supplier of software for 16-bit micros.

The ACT software, which includes eight home-grown packages as well as third party products such as Wordstar, Supercalc, dBase and Micromodeler, will be most portable, Foster claims. Tests have already been run with the IBM Personal Computer, and Foster can foresee no problem running on the DEC Rainbow.

ACT is "talking to IBM, but not sure they are talking to us", Foster said. He hopes that at least IBM will approve the Pulsar software, but his aim is to "make Pulsar a brand name in its own right". ACT's turnover in 1982 hit £8.8 million, and Foster expects it to double this year, mainly because of the influence of the Sirius. The company's sales have climbed steadily from £643 million in 1974.

Each package in the Pulsar suite, including documentation, costs £195, but a discount of up to 60% will be offered to the larger dealers.

Foster stresses that the dealers must be allowed to make a decent profit, and at his presentation before 300 of them last week he encouraged them to get more added value on their sales, for instance in

the area of maintenance.

Foster, with others, sees a big shake-out in the dealer marketplace, particularly with DEC and IBM coming into the market and selling direct. And big retail chains like Granada, which has its eyes on the IBM Personal, will also give the established dealers a run for their money.

Foster emphasises that ACT is a software company. The company has spent £1 million on developing microcomputer software so far, and plans to spend at a rate of £400,000 to £500,000 a year.

In addition IBM has cut the prices of its 4321 and 4331 machines by between 20 and 34%.

Major announcements are imminent... Kevan Pearson reports

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US prices slashed on 4300s

by Kevan Pearson

IBM has boosted its 4300 series with two new processors, including a new top system. It has also cut prices on existing machines, by up to 34% in some cases.

IBM will also support its Small Systems Executive (SSX) on all 4300 machines. Previously it was available only on the entry level 4321 system. Price cuts of up to 34% have been facilitated by a cut in memory prices from \$17,500 a megabyte to \$10,000 on all machines, thought largely to be due to the recently-announced cross-licensing deal with Intel on 64 Kbit RAM devices.

The new top system, the 4341 Model 12 is rated at about 1.6 mips, and is available with up to 16 Mbytes of main memory. Six channels are standard, and a top performance will cost about \$500,000 in the US. There is also a new 4341 entry level system. The 4341 Model 9 costs \$81,000 and is rated at about 0.6 mips.

Delivery of the 4341 Model 9 is expected to start in March 1983, with the more powerful Model 12 coming a month earlier. The existing Model 2 will be field-upgradeable to Model 12 specification.

In addition IBM has cut the prices of its 4321 and 4331 machines by between 20 and 34%.

The price cuts are bound to produce a competitive reaction from the plug-compatible suppliers who traditionally undercut IBM by about 25% in price-performance terms.

IBM to cover the gaps in its middle range

IBM is now widely expected to launch its first Olympia machine, to fill the gap in its product range, late in November. Last week it gave notice of its intentions by stretching the 4300 range, and by cutting 4300 prices in the US by up to 34%.

The stretched 4300 range now goes up to over 1.8 million instructions per second. But even this increase is short on the expected 2.5 mips from the as yet unnamed Olympia machine. And this itself could be immediately followed by a more powerful version, around 3.5 mips, placed in the market to provide a swing machine to move 4300 users from DOS/VSE, IBM's small mainframe operating system, to MVS and even Extended Architecture.

Pricing and delivery decisions on the new machines will have a crucial impact on IBM's already announced machine, particularly the low-end 3083E, rated at just over 4 mips.

John Fuller, a director of the independent lessor, PCML, expects IBM to price the 2.5 mips machine at £350,000, and the 3.5 mips version at up £500,000. This would make the machine attractive to users with a long-term interest in moving to IBM's new architecture embodied in MVS/XA, provided that IBM supports XA on the new machine, which it is expected to do.

IBM's present product line-up contains a sharp halt for 4341 users who have run out of power, and who are thinking of planning for the future. The 3083, effectively replaced by the 3083, in April 1982, though still being made at Montpellier, according to Fuller, represents a large jump - 1.6 mips to about 5 mips - for most 4341 users. It is water-cooled, very expensive at about £900,000 new,

A bottom end 3083E costs over

£800,000, and IBM will not deliver the machine until 1984, despite the prodigious user interest in the 3083 series. It is estimated that there are well over 1,000 orders for the 3083 in Europe, alone.

IBM is soon to start delivery of the middle machine in the range, the 3083B and will start delivery of the top model J early next year.

The problem it faces is that it costs as much to build a 4.2 mips version as to build a top performance 9 mips machine, though the latter is over twice as costly to the user - £800,000 opposed to £1.7 million.

At this stage in the production cycle the 3083B will not be profitable for IBM. By 1984 it will be, but in the meantime IBM needs to give some hope to the myriad 4300 users. They are locked out of IBM's long-term plans, based on already announced machines.

IBM needs to announce the Olympia machines to reassure these users of their place in the IBM fold, and to provide them with the means of moving to MVS/XA, which represents the only long-term development in IBM's operating systems, and many observers feel will become IBM's only mainline operating system for mainframe computers.

DOS/VSE is likely to be unsuitable for the high performance computers currently being developed.

The other reason IBM will have to launch the Olympia range is that it has already committed considerable money to the project, which was already well under way when the 3083 series was announced in 1979.

Besides, judging from the amount of legal activity against the PGM manufacturers in the US, IBM is concerned about them,

and is an MVS machine, without

the provision to run DOS/VSE, under partitioning, since the 3033 does not support VM.

Finally it does not support MVS/XA.

IBM signalled its intentions with the 3083E, which does not need external water-cooling, even though the CPU is cooled by a

fan. The problem is that it is

designed as an XA machine. But again it is expensive. Nor at the moment, does it support VM or VM-like facilities, although this is expected to be remedied.

But it still means a radical de-

parture for a 4300 user; it is based

on a different technology, and its

facilities are designed for more

extensive use than envisaged for

the typical 4300 user.

Consequently a 3.5 mips

DOS/VSE and MVS/MVS/XA

machine is much needed in IBM's

product line, to move up 4300

users. In many cases the 3083 is

unsuitable for this.

A bottom end 3083E costs over

£800,000 new,

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A bottom end 3083E costs over

Modern return for McNulty

by Robert Parry
DISPOSSESSED but undaunted, former Modular Technology owner John McNulty has bounced back. His return will be marked by the formation of a new company, still in the computer communications business and still based in Watford, to be called Modern Technology.

The new company will be staffed by his old team — who left Modular Technology when the receiver was called in at the end of July — and will be coming out with new communications products.

"We are moving forward into higher technology stuff," says McNulty. "There were a lot of redesigns under consideration that had not been implemented."

Withdrawal of support by financial backer Industrial and Commercial Finance Corp., which refused to put up more cash to tide over Modular Technology and called in the receiver, left McNulty bitter about institutional funding of high technology companies.



McNULTY... "We are moving forward into higher technology".

This time his company will be financed by "real money that actually belongs to people," says McNulty.

Among McNulty's "good friends" are Clive Sinclair and two other UK microcomputer makers, Rair and Torch. These two will be helping with export effort, particularly in the US where they are well established. The Torch link was in

Graduates set up consultancy on campus

by John Kavanagh

TWO graduates fresh from East Anglia University have formed their own consultancy on the campus and are offering clients the specialist computing skills of the university's lecturers.

Synergy Computer Systems of Norwich is run by computer science graduate Sonia Kennedy and accountancy specialist Stephen Barrett. The third, part-time director is Trevor Wood-Harper, a computer science lecturer who specialises in systems work.

Synergy is concentrating on microcomputer systems for local small businesses. It sells the British Micro system, IBM's Personal Computer and the Apple, mainly with existing standard software packages.

But customers seeking tailored systems, computer-aided design packages, control engineering consultancy and scientific systems can call on 13 professors, PhDs and MScs specialising in these fields.

Thomson to shut IC venture

by Jack Gee

THOMSON-CSF'S prospects of playing a key role in France's computer components industry appear seriously jeopardised by the likelihood that the microlithography department of its subsidiary Cameca is about to close.

Cameca has been developing equipment to manufacture integrated circuits for the past three years and over £4 million has been invested in the venture.

Harris since 1979 in Nantes. The staff now exceeds 400 and the new Matra-CGA venture will create 150 jobs by the end of next year and about 1,000 by 1987.

Hailing the new Franco-American alliance, French Premier Pierre Mauroy said, "This agreement sets us a number of examples which are worthy of being followed. It makes sense of what we call the electronics channel."

Asked about reports that the shutdown was imminent, a Thomson official replied, "Well, it would make sense."

Industrial circles are discussing the possibility that Cameca's operations might be absorbed by Matra.

Matra's role in developing a French components industry has been enhanced by the creation of a joint subsidiary with the United States' CGA in Nantes, on the Atlantic coast, to design and produce equipment to manufacture semiconductors.

The new firm will sell this equipment in Europe while CGA will market it worldwide. Matra-CGA will also have exclusive sales rights for American-made CGA products.

The new alliance marks a big step forward for Matra which has been operating an integrated circuit factory in partnership with

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NEWS ANALYSIS

The 'here today, gone tomorrow' philosophy of unauthorised dealers is working against both manufacturers and users... John Kavanagh reports

Cowboy dealers ride roughshod over users

THE terminal market is in danger of becoming known as the cowboy business of the early Eighties as major manufacturers and distributors – and end users – are hit by the antics of 'here today, gone tomorrow' dealers.

That is the view of Tony Beswarick, UK manager of Geveke Electronics, the Netherlands-based company which distributes printer terminals from Diablo and Newbury Data. It also sells its own terminals, made to its specification in the Far East.

As the biggest Diablo outlet in the UK, and therefore close to the small and medium-sized system builders, Geveke feels it represents the industry's view at a time when some manufacturers – notably Digital Equipment with its so far ill-stocked authorised distributor scheme – are trying to bring discipline to the market.

Beswarick says some of those very manufacturers are turning a blind eye to what is happening.

"Good products are becoming available through unauthorised dealers," he says. "These little fly-by-night companies might be selling peripherals to small but reputable micro system houses or offering complete systems to small businesses. Micros have standard interfaces so anyone can plug in a printer, provide a standard software package and call it a system."

"They can often get printers, say, at good rates by dealing with outlets in different countries where a local firm might be overstocked

and happy to sell them off cheaply. It is difficult for the manufacturer to control this on a worldwide basis."

"These disreputable dealers offer little or no support. Some have trouble putting a plug on, so they are certainly not testing the devices to ensure they have a proper UK power supply, for example. This means they have

been complained that Xerox, Diablo's parent, has been dumping its printers at better prices than the authorised distributors can offer. This means the manufacturer itself is helping the fly-by-nights with cut-rate products.

Meanwhile, Diablo distributors have complained that Xerox, the manufacturer, is helping the fly-by-nights with cut-rate products. This means the manufacturer itself is helping the fly-by-nights with cut-rate products.

"Instead of the dealer, if pushed, will offer to swap the device for another, perhaps from a different manufacturer, even. If the dealer has disappeared or refuses to listen to the customer, he can be stuck, for the manufacturer cannot be seen to be supporting the fly-by-nights. So even the very best product from a top supplier can start to get a bad name. And that bad name can soon affect the reputable distributors and ultimately the manufacturer."

Beswarick feels the manufacturers are not doing enough to stamp out the disreputable dealers. Indeed, he believes some are turning a blind eye.

"It's a big problem for the leading manufacturers," he says. "They naturally want to shift as many products as possible. But they must decide whether they just want to make big money very quickly or whether they are going to support users and sell properly as a long-term investment."

Digital Equipment, with its authorised distributor scheme, is one of the manufacturers trying to sort out the terminal market. The scheme was launched in the UK eight months ago. Some of the

new overheads and can offer very low prices to the small user or systems house. But these are the very people who need the support.

"The customers are happy at first because they know the product is well established and has a good reliability record, so they're glad to get it at a knock-down price."

"We have cut out this extra link

distributors are unhappy with the scheme, pointing to instances where they have been undercut by "unauthorised" dealers and faced competition from DEC itself.

DEC puts most of the problems down to teething troubles and promises a happy Christmas to all the authorised firms.

"However, the dealer flits from one product to another, depending on where the best deals are to be made, so there is no commitment to a particular product. There are no stocks of spare parts or knowledge of how to do minor repairs. For example, even an occasional small adjustment to a printer can make a big difference to print quality."

"Instead of the dealer, if pushed, will offer to swap the device for another, perhaps from a different manufacturer, even. If the dealer has disappeared or refuses to listen to the customer, he can be stuck, for the manufacturer cannot be seen to be supporting the fly-by-nights. So even the very best product from a top supplier can start to get a bad name. And that bad name can soon affect the reputable distributors and ultimately the manufacturer."

Beswarick says reputable distributors should now demand that the manufacturers endorse their "official" distribution networks as the proper outlets for their products.

"Authorised distributors offer assurances to both the customer and the manufacturer that there is a proper, reliable interface between them," he says. "A distributor specialises in being a trading organisation and is set up to reach and support corners of the market which the huge manufacturer cannot hope to find, let alone support, without massive investment in marketing staff and field service engineers."

"It is committed to specific products, unlike the fly-by-night, and has the trust of the manufacturer, which should provide information on existing and forthcoming products so the distributor can gear up to provide full support."

"US manufacturers find more and more that it's cheaper having their products made in the Far East," says Beswarick. "So they get one of the many high technology manufacturing specialists there to build their products. But this means the US firm takes on a dual role – it calls itself the manufacturer but it has really become a distributor."

"We have cut out this extra link



Everything must go – but cut-price products benefit only "fly-by-nights".



BESWARICK ... "Some manufacturers are turning a blind eye."

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"We have cut out this extra link

DP MANAGERS: ARE YOU CONTROLLING THE MICRO REVOLUTIONARIES?



Life used to be simple in DP departments – a mainframe or two and perhaps a few minis neatly connected – and the DP Manager firmly in the driving seat.

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With so many different micros in use, how can DP Managers be expected to provide central support effectively?

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compatible upgrade path from single-user operation to multi-user and local networking. They span the entire range of micros from 8-bit Z80s to the new generation of 16-bit processors, the 8086 and 386/486 – not to mention the IBM Series/1, the DEC PDP-11, the DG Nova, and the Texas 990. BOS Systems are compact enough to operate a 10K personal computer, yet powerful enough to exploit the Winchester disks, cartridge tapes and megabyte memories of the modern multi-user micro.

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SOFTWARE FILE

Digital Research bid to stay on top

by Claire Gooding
DETERMINATION to stay on top of the micro market is the key to Digital Research's wholesale upgrade, announced last week, of the CP/M operating system.

In the face of stiff competition from Microsoft, which has MSDOS and Xenix on offer, Digital Research has to convince European and US users that CP/M can be expanded to cope with the more sophisticated demands of the 16-bit multi-user market.

Digital Research is claiming that "What we've done is to produce a family of integrated products, for everyone from the single-user CP/M system upwards through Concurrent CP/M to the larger users who want networking and multi-use operations" said Kildall.

The company also has to combat the unpopularity of its multi-user solution MP/M, which does not have a good reputation in terms of response time and performance.

An answer to these problems is Concurrent CP/M-86, the first true single-user multi-tasking operating system for 8086 and 8088 microcomputers. Kildall's R&D team aimed to give the user full control of his own operations by making the OS more co-operative in dealing with several different tasks at once. Virtual screen management, and running in virtual output mode (similar to "real time" operations), are the vital factors in Concurrent CP/M-86.

Kildall also claims the VISA terminals will cope with the growth path to multi-tasking, and Local Area Networking, whereas

Under Concurrent CP/M, users can swap from one task, and one screenful of information at one keystroke.

Users will also be able to run a process "in the background" while working on another task on the screen.

Kildall champions the small user, and sees the priority as giving the individual user as much power and flexibility as possible.

"The way forward is for computers to deal with pictures, not processes. We are working towards systems like Xerox's Smalltalk, with lots of processes shown on the screen together, splitting the actual screen up into tasks, and controlling them with a mouse."

Digital Research has concentrated on making its operating systems easy to use.

Kildall feels that the enhanced CP/M offering will take care of the mainstream business, which he still sees as the one-man user.



KILDALL ... "The way forward is for computers to deal with pictures".

Aid to vector matrix manipulation

A PREPROCESSOR for standard Pascal compilers has been announced by the Worthing company Unit-C. Called Matrix Pascal, it was designed by Logical Research as an aid to vector-matrix manipulation.

"It should be particularly useful in structural design for the engineering industries," says Nigel Heworth of Unit-C. Pascal text is passed through the preprocessor and only lines containing Matrix Pascal variable are expanded.

25th conversion

ITS software package used on mainframes and large minis has been converted by P-Stat of New Jersey for the Wicat 100 and 150 superminis. It is the 25th conversion of the package.

APL group

AN APL user group has been formed by seven companies with micro interests following the recent APL '82 conference in Heidelberg. The International APL Micro Association comprises firms from England, West Germany, Denmark, Sweden, Belgium and the US.

A thrifty new generation of "thimble" printers.

First Ada compiler to meet draft Ansi standard in UK soon

by Philip Hunter
The first Ada development system with a compiler that conforms to the draft 1982 Ansi standard for the language has been announced in the UK by the US computer and telecommunications giant ROLM. Orders for the new Work Centre have already been received from leading US defence contractors, and shipments to the UK will begin in January.

So far only two languages, Cobol and Fortran, have standards laid down by Ansi, the American National Standards Institute, universally held as the leading standards body.

Ada will be the third language to be given a standard, although Ansi has not yet released a final version.

ROLM claims to have seen the draft specification, and developed its Ada accordingly.

"We have beaten Ansi to its job," says ROLM Northern

European sales manager Gavin Robinson.

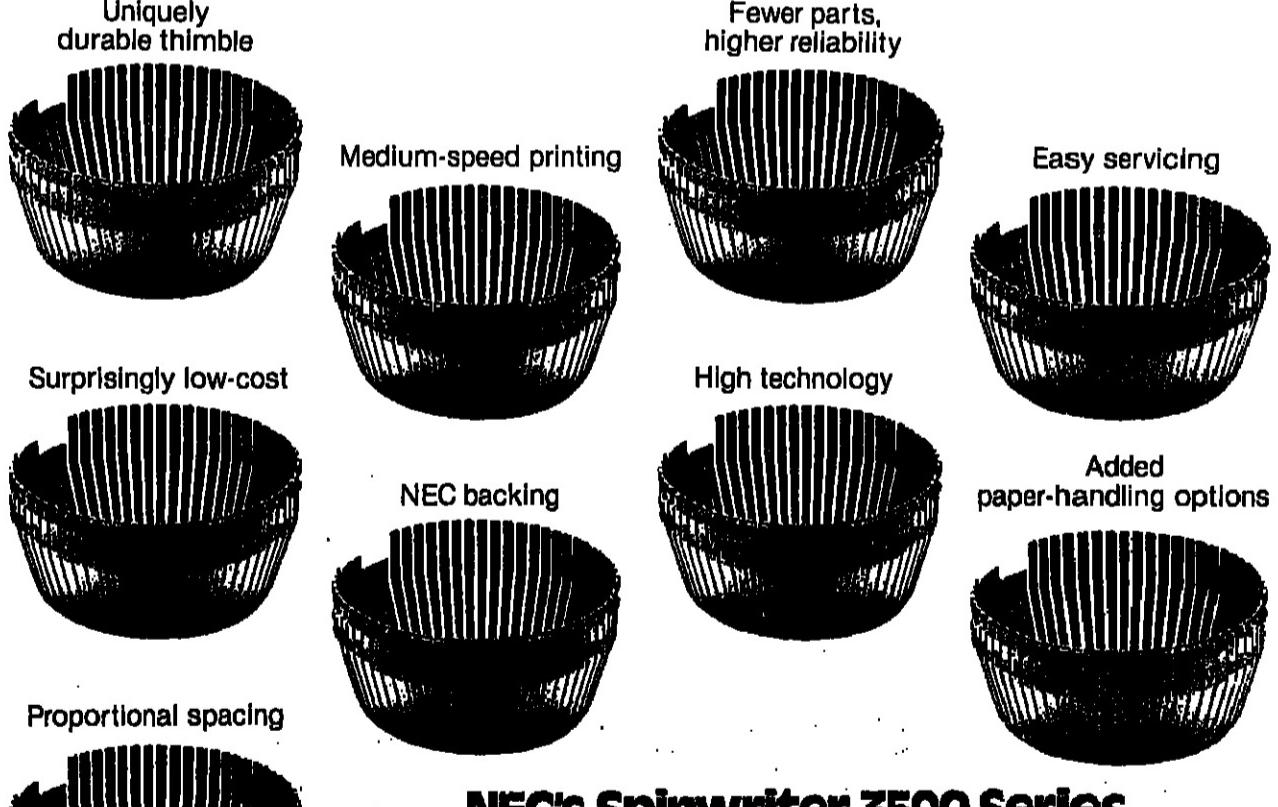
Two other US corporations, Intel and Western Digital, are said to be working on Ada systems to the 1982 Ansi standard.

ROLM claims that its system is the first completely integrated package of hardware, software, and technical support available for immediate Ada program design. It includes the compiler and Ada, the Ada Development Environment with a multi-terminal 32-bit processor, the ROLM MSE/800.

The full workstation including hardware, and a year's maintenance, costs \$580,000. A licence for the software development tools costs \$32,000.

The Work Centre was de-

veloped by ROLM's Mil Spec division, which has also recently announced a range of rugged military hardware for the battlefield.



NEC's Spinwriter 3500 Series

If you're thinking about choosing a "daisy wheel" printer, think again. In the long run, NEC's new medium-speed Spinwriter 3500 Series may well be the more cost-efficient choice.

Our unique thimble element gives more characters in many languages.

In fact 128 versus the more common 96.

By dramatically reducing the number of components in the Spinwriter 3500 Series, we've made it one of the most reliable and cost-effective printers you can own.

The new 3500 Series also comes with a wide choice of paper-handling options and the latest word-processing features such as proportional spacing.

All this, and full backing by NEC – one of the world's largest electronics manufacturers.

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MICRO NEWS

Dutch shake out the fake Apples

APPLE'S crop of Asian counterfeiters continues to dog the Cupertino company. It is pursuing court action against manufacturers of imitation Apple II's to protect its rights and hold on to its market share.

Its latest success in the fakes war was in The Netherlands, where the Amsterdam District Court has forbidden a Dutch company, CAB Trading, to continue to sell the Apple II, an Apple II copy from Sunrise Computers of Taiwan.

Distribution of a brochure using terms like "Apple II compatible" and use of the trade name Apolo were also forbidden.

The court ruled that the name Apolo was a direct infringement of Apple's registered trademark, and that the overall behaviour of CAB Trading was "intolerable and represented unfair competition."

The external and technical design of the Apolo II was deemed a direct copy of the Apple machine, and the Apple software in EPROM was found to be copied.

The court action started after the fake machine was shown at an exhibition in Amsterdam.

Apple's stance is one of sys-

temically taking legal action against lookalikes when it can do so effectively. So far actions have been concentrated in the US and the Far East, where Apple fakery is most prevalent.

"We haven't seen things like the Apolo here in the UK so far," says UK managing director Peter Cobb. He feels the position is secure here - more so than on the Continent.

"But if we see anybody coming, then we'll go for them."

Meanwhile in the US, Apple has filed a civil action in Los Angeles alleging copyright, trademark and patent infringement against Formula International. Apple charges Formula with knowingly importing and selling a kit - called Pineapple - which assembles to a virtually identical Apple II copy.

Apple says the suit is to supplement US Customs action, by which Apple copies being imported into the US are confiscated. It seeks to stop Formula from selling the Pineapple kits, which come from Hong Kong or Taiwan, and to impound all allegedly infringing items - as well as to collect unspecified punitive damages.



Cobb... No Apple lookalikes in the UK so far.

MoD to pump £6m into high power chips

BRITISH electronics development is to receive a £6 million boost from the Ministry of Defence. A new laboratory is to be established at the Royal Signals and Radar Establishment in Malvern, where the MoD funded programme is being planned as part of work on the very high performance integrated circuit (VHPIC).

The centre at Malvern would allow Britain's main defence contractors access to production techniques for high-powered chips, working up to 100 times faster than the current crop of microelectronic devices.

These main defence electronics companies are GEC, Plessey and Ferranti. No date has yet been given for when the laboratory will get underway.

Approval for the VHPIC project was given two months ago, so the project could begin in April next year. But the prolonged deliberations of the Alvey committee delayed this, and the VHPIC project may be merged with an national project that comes out of Alvey's plans.

The project rivals the US Department of Defence's very high speed integrated circuit (VHSIC) programme - longer established and better funded than the Ministry of Defence scheme here.

VHSIC was set up in 1980, funded to the tune of \$210 million, and involves six major US semiconductor manufacturers as prime contractors for a series of projects.

It had been hoped at the start that British military scientists would be able to collaborate, setting up joint ventures with the US companies taking part in VHSIC work. But the US government decreed that no foreign countries,

not even fellow NATO members, would be allowed to participate.

Fears of technology leakage

on the programme leaking out to the USSR were instrumental in this decision.

Being frozen out of the American development programme that is to keep in touch with technology for advanced high speed, high density integrated circuits, the British military establishment had to prepare its own programme.

There has been close cooperation between the private companies active in the area and government departments like the Ministry of Defence, Department of Industry and the RSE, at general agreement that a programme like VHPIC is what the UK defence industry should be going after.

"There's no question," says director of GEC's First Research Centre Derek Roberts. "The laboratory at RSRE is entirely consistent with what we have been pressing for."

Roberts also emphasises the importance of the project being in high performance rather than in high speed ICs. There is more performance than just raw data speed, he says. It takes in analysis aspects of circuit performance too.

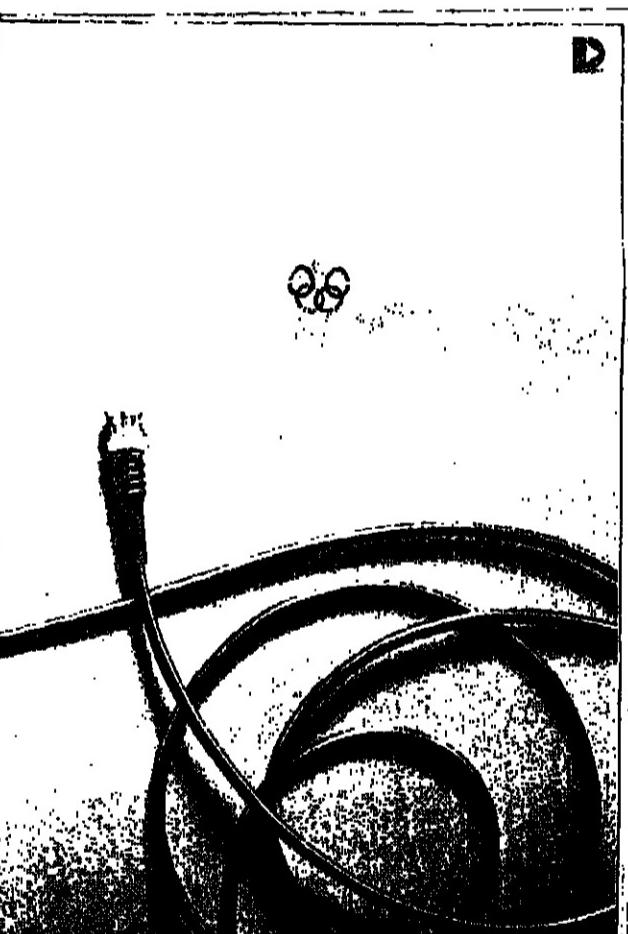
He feels the US programme, defined in its terminology, is rather restricted.

"If you are setting about a research project like this, you do want to restrict your aims at the start," adds Roberts.

The US VHSIC programme's first phase aims to develop chips that run at 25 MHz, with a functional throughput rate of 5 x 10¹⁰ gates-Hz per square centimetre.

Rank Xerox have been advertising their Local Network a lot lately.

Perhaps they read this booklet, first published by Datapoint 5 years ago.



communications. In fact, Datapoint is so far ahead of the competition that estimates put our share of the British market for Local Networks at between 70 and 80 per cent.

In round numbers, we now have 150 Local Networks, operating in the UK. That's more than all other Local Area Networks put together!

World-wide, it's the same story. But the figures are even more impressive: over 4,000 Datapoint Local Network installations. So we're not just number one in the UK, we're number one in Local Networks all over the world. And, whatever else our competitors tell you about themselves, they certainly can't say that!

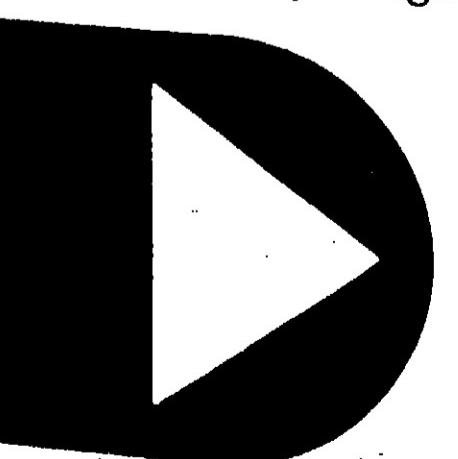
It was over 5 years ago that we launched the Datapoint Attached Resource Computer (ARCNET) for short - and our own name for the Local Area Network. Since then we have been installing, supporting and enhancing ARCNET by adding more capabilities, making better use of resources and opening the network to other systems.

Today, while most of the information processing industry is marketing first generation networks and promising second generation capabilities, Datapoint has moved into the third and fourth generations, incorporating integrated voice and data

Please send me the latest information on Datapoint ARCNET.
Name _____
Company _____
Address _____

Post to Datapoint (UK) Limited, Ventek House, 400 North Circular Road, London NW10 0JG. Tel: 01-459 1222.

CW2



DATAPPOINT

THE COMPLETE COMPUTER COMPANY

The Datapoint 'Road Show' will be visiting major cities around the country. For further details please ring: 01-459 1222.

Oki suffers fire setback

A FIRE at Japanese semiconductor manufacturer Oki's Miyazaki plant has set back its 64K dynamic RAM production. The fire was in the ceiling of one of the wafer fabrication rooms, and equipment was damaged, mainly by the water used to put out the blaze.

The fire caused a temporary shutdown of the plant, which manufactures a range of ROM chips as well as the 64K dRAM, but most of the plant is running again and full production capacity is expected to be regained by next March.

The fire and attendant delays in

Micro News is compiled by Robert Parry.

Timeplex sets another standard - in modems.

The V.29 PLUS Advanced Intelligent Modem truly lives up to its name with intelligence plus. It meets all CCITT V.29 requirements with lots more pluses in modem features to provide the greatest possible networking flexibility and control.

The V.29 PLUS really has everything you always wanted in a multiport modem but could not buy until now... 39 speed configurations including 1200 bit/s, any port sync or async, all programmable through the front panel, and the remote modem is automatically configured at the same time. You can test remote ports individually without interrupting data on other ports, and you can even test tail circuit modems without remote operators... and more.

Call TIMEPLEX to find out more about menu driven modems that are available now, and other advanced data communications products with lots of pluses.

Please supply further information on the Timeplex V.29 PLUS Multiport Modem.

Name _____
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Timeplex sets another standard - in modems.

Call TIMEPLEX to find out more about menu driven modems that are available now, and other advanced data communications products with lots of pluses.

Timeplex sets another standard - in modems.

COMPANY NEWS

CTL has found magic formula

FOR some companies, like Hemel Hempstead-based CTL, there is no recession. Announcing half-year figures last week, managing director Bob Finch revealed turnover 50% up on last year at £7 million, and profits in line with turnover.

The company closed its books for the first half of fiscal 1981/2 less than two weeks ago, but the fact that Finch could confirm there had been no change in the profit to turnover ratio clearly implies a net of close on £1 million.

For the whole 1980/81 CTL, which is a subsidiary of the Information Technology group, produced turnover of £1.1 million and pre-tax profits of £1.3 million. Both profit and turnover last year were 28% up on the previous year, showing that CTL, mostly via its Momentum resilient system, has found the magic formula for accelerated growth, more familiar in US than in UK companies.

Finch, having noted that CTL was now clearly out-performing the industry as a whole in terms of growth, said he had every confidence that it would continue this rate of growth in the second half.

The company, said Finch, is now benefiting directly from a decision to double expenditure on sales and marketing over the past two years.

CTL has increased its return on capital, a measure of profit against investment, to 40%, one of the highest in the UK.

The successful maintenance of profit margins in the face of increased investment, Finch attributes to "tight financial control, with profit centre responsibility pushed right down the management team."

According to Finch, CTL is in no immediate rush to go public on the Stock Exchange, although the company's performance makes it a logical candidate for a public share sale.

CTL was set up in 1966 to manufacture transaction processing-oriented minicomputers, and has been profitable since 1974.

The company's principal pro-

Figuring on another Apple

THE question from Silicon Valley is: Have we found another Apple?

This refers to venture start-up Convergent Technology, which has just revealed third quarter figures showing a turnover leap from \$1.8 million a year ago to \$29.6 million for the quarter ended September 30, 1982.

Income followed the sales climb by moving from a loss of \$592,000 to a profit of \$7.29 million for the third quarter.

Sales for the nine months were \$54.0 million compared with \$4.7 million for the first nine months of last year.

A start-up loss of \$1.09 million has been converted into a net profit of \$12.9 million for the first nine months of 1982.

Convergent makes a 16-bit workstation which it sells on an OEM basis only to such industry blue chip companies as Burroughs, NCR, Thompson CSF and TRW.

The company was founded in August 1979.



Taking their own medicine are John Goodeve-Docker, managing director of Patrick & Leach Microcomputers (left), with Roger Leach (right) and Patrick, founders and joint managing directors of Patrick & Leach.

'Start-up' company moves into micro

by Robert Parry

MANAGEMENT services company Patrick & Leach, set up in August to help start-up businesses get going, has taken its own medicine and formed a separate microcomputer company.

Based on ICL Trafalgar Point and Triumph Adler dealerships, Patrick & Leach Microcomputers is intended to be self-sufficient, operating as a general micro dealer for business applications. But it will also act as a service arm to the "company company" Patrick & Leach, and serve as a showcase for what it can offer in the way of establishing a small business.

"They put their money in their mouth," says Gil Patrick, director of Goodeve-Docker. "Though I see it as predominantly as a micro, it will also be a major example of the Patrick & Leach service." It operates out of Patrick & Leach's West End offices. Apart from a few retailing business ends, Gil Patrick in 1981, microcomputer services' main venture to date has an electrical wholesaling under way - hopefully taking a back seat to the company at the moment. He would like to be involved in setting up other micro dealers in the country.

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"We are convinced that the use of modern management tools, especially the use of microcomputers and software, will be crucial to the success of the companies we help to set up," says Gil Patrick, with Roger Leach, joint founder and managing director of Patrick &

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PROFILE

What makes an editor move into the business

WHEN one of the best known journalists in the computer industry crosses the line and moves into the business, there has to be a good reason.

According to Peter Laurie, until recently Editor of Practical Computing, the reason was straightforward.

"After writing in books for 20 years, I could see an industry just like publishing, and I wanted to found a publishing house that would be around in 10, 20 maybe 200 years' time."

With the aid of a start-up loan provided by his employers on Practical Computing, IPC Business Press, Laurie set up a software company called Southdata Ltd.

The company began operations two years ago and has invested about £12 million in producing a database manager and a series of programming tools for use with eight-bit micros.

Laurie left Practical Computing a little over a month ago to devote himself full-time to marketing the Southdata products, now field tested.

Most of the IPC loan was spent on developing the software and Laurie turned to Barclays Bank to provide the £75,000 needed to get the marketing operation on the road.

Laurie was offered the best loan package on the market, the Barclays start-up loan. He says he has to pay nothing back to the bank for five years or, if his sales take off fast enough, just a small royalty on turnover, calculated to give Barclays the equivalent of 12% over the full life of the loan.

Given that the packages, called Superfile, Superform and Superstab, are ready to run, Laurie has calculated first year revenues of £350,000 based on selling 1,000 packages at about £350 each.

Wondering if there might not be another Adam Osborne in the offing out in Chiswick, where Southdata is based in a converted warehouse, we asked Laurie how he had become interested in micros.

His cv showed him as Sunday Times colour supplement writer

LAURIE... "I wanted to found a publishing house".

DOWNTIME

No sense of urgency

THE demise of the telegram and its replacement with the funkily-named telemassage means that urgent messages will in future be delayed until the next regular postal delivery. No more will the arrival of a uniformed Moped-borne messenger strike fear into the hearts of citizens.

Now messages of earth-shattering import will lie unsuspected among gas bills and this week's once-in-a-lifetime offer from the Readers Digest.

As a special concession to valued customers - well only one valued customer actually - BT is providing a special telemassage envelope for them. This envelope bears the Queen's coat of arms and is intended for use by - you guessed it - the Queen, mainly to send congratulations to centenarians.

10 YEARS AGO

FROM COMPUTER WEEKLY OF OCTOBER 26, 1972: A new building to house Inland Revenue computers was authorised for Washington, Co. Durham... A family of 12 commercial minicomputers, the L8000 series, was unveiled by Burroughs... The National Coal Board proposed a nationwide computer network.

Daft dressers

THIS week's prize for extreme silliness in the face of recession goes to the United Counties bus company in Northampton. It is offering cheap fares to passengers with brightly-coloured hair or strange clothing under a scheme rejoicing in the name "Daft Discount".

What a shame the computer industry is so dull by comparison with public transport.

PLATFORM

'Advanced example of a well-known British problem'

Extracts from ICL chairman Sir Christopher Laird's speech at the British Computer Society's Jubilee Dinner.

prior to his Practical Computing involvement.

"I left the Sunday Times Colour Supplement, then I started to teach myself electronics. I wrote a book about how to teach yourself electronics to pay for what I was doing."

Laurie, who has involved his entire family in the Southdata project, added that he then wrote a book on the micro revolution for Futura, a publishing company. "Unfortunately, Fontana published a book, also called the Micro Revolution, by Peter Large, of the Guardian, on the same day."

After the book came Practical Computing, which Laurie edited from scratch.

The magazine is one of the most successful in its field, selling 68,000 copies each month to what Laurie describes as "a very enthusiastic market".

Was he worried about "Shock Horror Laurie Can't Deliver - It Won't Work" headlines?

Laurie laughed a knowing laugh and said that he had taken the first precaution against that happening - his product was fully tested before he launched it.

From his position on Practical Computing

Computing Laurie admits that he has a unique view of the market, which led him to choose as his first product a micro database system for use on eight-bit multi-user machines.

He chose the Sheldon Signet because the manufacturer had the operating systems source code - vital if he was to easily debug and sort out problems on-site.

In addition, the Signet is British, which we prefer to buy," Laurie says.

The database system is called Superfile. Laurie claims that it is easier to use and more flexible than any other package on the market.

Written in Z80 machine code the DBM can handle searches based on "sounds like", and is restricted in record size only by the capacity of the machine itself.

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In Japan the consensus strategy developed since the late Fifties, aided by large grants and their inscrutable non-tariff barriers has built a national industry with very advanced technology, and a home market share of over 90% in the public sector and nearly 60% in the private sector. What a basis for their onslaught on world markets!

Nearer home, France has announced plans to invest £11.2 billion in the electronics sector, with 60% in computers, chips and what the French call bureautique or office systems. Not a bad demonstration of their determination to push the industry into a leading role in the world. But cleverer than that, they have not yet said how this large sum will be allocated.

So the various departments in the public sector and what is left of the private sector will be vying with each other to demonstrate their need for leading edge systems, knowing that the money will be available for the most promising.

Here the scene is also not quite that, and Alvey's £350 million over five years, however welcome,

is rather modest in comparison. It is also to have a Minister of Information Technology who understands the enormous potential - he has even spoken of another North Sea or indeed it may impact our lives even more.

And we are lucky to have a Secretary of State for Industry who is determined to switch support from old and dying industries to the new and growing. His department has not been lucky yet with its direct investment in IT but it has at least assisted one major rescue operation for which 23,000 people are grateful.

What more do we need? First of all from government we need recognition that to help pull through the leading edge of technology substantial investments in systems are needed before they can be benchmarked. The public sector could do this if government told them to, and might salvage some of their reputation.

Secondly, it must be right to fight against protectionism, which would make this country much poorer, but in international trade we must all play the same rules.

The EEC and the end of privileged single tendering are admirable and we must all be more competitive. But if we look at a National Vehicle Licensing Centre, can you imagine that in France or Japan or the US or Germany they would refuse to wait a year so that the competitive bidding could include an excellent new indigenous product which government itself had helped to nurture.

We have a large new task in education, both of the large numbers of potential users specialists to build systems them. There are by now a large number of training courses on how computers and their ware work. There are by now remarkably few courses of this next development about: information engineers.

But the profession of information engineer hardly exists yet into being. We must temper computer science courses with strong bias towards this result, by working with universities and industry to sort of people we need.

At present expenditure on IT in the public sector is less than 1/4% of payroll. A target of 2/4% in two years would still be modest compared with our competitors. It is hard to think of any more effective and less painful way of increasing the productivity of our much criticised public sector.

By 1990 about two-thirds of the workforce in this country will be processing information as the added value which justifies their

work. There is by now a remarkable few courses of this next development about: information engineers.

But the profession of information engineer hardly exists yet into being. We must temper computer science courses with strong bias towards this result, by working with universities and industry to sort of people we need.

We need to equip managers across the whole of the British economy to win against our foreign competitors.

At present these infant handlers are enormously capitalised. If you compare with the agricultural workers ratio is perhaps only 1 to 1.

We are no longer just a business of automating processes - we are entering business of supporting the decision-making of management every walk of life. I believe it is tremendous. It is also obviously important that UK management's normal cautiousness put us at a competitive disadvantage in the world. Managers outside our industry have been determined enough to have techniques in order to detect information they really need to prove the performance and a commercial decision-making in their firm or their service.

What managers will be doing deciding by guess will be putting the back of an envelope, what competitor is using what support facilities from a database? How long will last if he did, and how long will his boss last if he denies him the best training and incentives involved?

We have a large new task in education, both of the large numbers of potential users specialists to build systems them. There are by now a large number of training courses on how computers and their ware work. There are by now remarkably few courses of this next development about: information engineers.

But the profession of information engineer hardly exists yet into being. We must temper computer science courses with strong bias towards this result, by working with universities and industry to sort of people we need.

At present expenditure on IT in the public sector is less than 1/4% of payroll. A target of 2/4% in two years would still be modest compared with our competitors. It is hard to think of any more effective and less painful way of increasing the productivity of our much criticised public sector.

By 1990 about two-thirds of the workforce in this country will be processing information as the added value which justifies their

work. There is by now a remarkable few courses of this next development about: information engineers.

But the profession of information engineer hardly exists yet into being. We must temper computer science courses with strong bias towards this result, by working with universities and industry to sort of people we need.

We need to equip managers across the whole of the British economy to win against our foreign competitors.

ALMOST two pages (CW, October 7) are devoted to an attack on trade with South Africa, putting the case that the sale of computers to that country helps to suppress human rights.

While I am sure the writers involved are sincere, one is bound to ask why South Africa is specially singled out for criticism. It is unfortunately the case that most of the other African states do not guarantee human rights as understood in this country. Most of them, unlike South Africa, have State-controlled press, radio and TV and nearly all have harsh discriminatory legislation against minority racial groups.

He acknowledged that he was facing the demand made during the summer by some MPs that the NRDC should lose its automatic rights under the 1949 Act to the patents from all inventions produced in government establishments.

He also expressed direct concern about moves to curb the BTG's ability to make equity investments in companies. Lurking behind Sir Frederick's diplomatic presentation of an unsettled future is a very real possibility that the government intends so to limit the British Technology Group that it will have little or no real role in financing technology in the future, on any significant scale.

Despite the failure of the government to indicate that the necessary legal measures will be taken to create the BTG and define its role, the merger of NRDC and National Enterprise Board staffs appears to have gone far more smoothly than anyone had a right to expect.

But without a clear definition of where to go from here, the strategic investment programme, which is, de facto, the key role of the BTG, is without a goal or direction.

Both the constituent parts of the BTG, the NEB and the NRDC, have substantial liquid assets, and massive undrawn loan limits granted them by law.

The combined cash assets and loan limits available to the BTG come to well over £140 million, more than enough for even a restricted investment programme.

Sir Frederick's predecessors kept borrowings low. And it now seems that their apparent good housekeeping will help in the demise of the only clearly constituted investment arm the government has got - the BTG.

It is obvious that the loan limits fixed in the 1967 Act will never be used.

It is equally obvious, to all but the most financially naive, that the cash assets of both the NEB and the NRDC will be realised for the benefit of the Treasury and not for British technology as they were intended.

Those with vacancies in their DP departments would do well to think again, and instead of employing an experienced programmer, give the opportunity to a trainee who can be moulded to the required standards.

Don't just knock Tops trainees, try us first.

A. JACKSON
Hayes, Middx

LETTERS

Why do human rights critics pick on S. Africa?

Most of your readers, I imagine, have met or worked with East African refugees who have been forced to leave their homelands purely because of their racial origins. Many African States, too, again unlike South Africa, practise racial and political murder on a vast scale, or are hopelessly corrupt.

If exporting companies are restricted to selling their products only to those countries with a good reputation for "human rights" then we will find that we will have a very small export market.

There is another point to consider - does trade with nations whose internal politics we find distasteful help or hinder world peace? Is it not more likely that a prosperous South Africa offers more hope for advancement for the Bantu than a South Africa in decline? And should not trade with

South Africa be encouraged because of the greater contact with the outside world that this will bring?

Whatever resolutions are passed by the United Nations, in the last resort our government has to decide whether trade with any country is in our interests or not. South Africa poses no military threat to the United Kingdom, to Europe or to the US. On the contrary, she has been a valuable ally in the past, and on no account would we allow that country to follow Mozambique into the Russian sphere of influence.

R. J. SILBURN

Credit card battle

Guarding against crime

IN your recent article, "Guarding against computer crime" one was left with the impression that the only solution was encryption. I beg to differ.

Recent surveys demonstrate that computer-related crime is largely external to the computer and thus encryption will encode the fraud as effectively as the valid data. I believe that for the majority of commercial systems appropriate control procedures and methods can be incorporated at the development stage with the active participation of analysis and audit staff.

Please let us highlight the common sense approach to these problems rather than this single approach that few understand and apparently even fewer need.

If in doubt seek the appropriate training!

M. F. TIMMS

Director of Education Services
Cambridge

Package plea

Wretched

MARTIN FLETCHER's letter (CW, October 14) demonstrates once again the insidious way in which pocket calculators have sapped the imaginative and analytical powers of otherwise, doubtless, quite intelligent people. Only the owner of a calculator would think of using the wretched machine to check the assertion regarding fifth powers. Anyone else could see straight away that assertion is proved simply by writing down the fifth powers of the numbers 0 to 9. Cheating has nothing to do with it.

I confess it concerns me slightly that the DP industry can (presumably) afford room in its ranks for those like Fletcher, whose interest in and approach to problems limit themselves to answers, and disregard solutions.

ROBERT NOBLE

CSL Ltd,
London W1M 4AJ

Basic Welsh

WITH reference to Donald Alcock's letter about Basic Welsh (CW, September 30) there is another language in which he could write his little piece of code.

I refer to Algol 68, which would enable him to dispense with LET at the beginning of assignments, to omit \$ after the names of strings, and to do a whole lot more useful things besides which are quite impossible in Basic.

BRIAN D. PAYNE
Marketing director
DN Computer Services Ltd
Manchester

K. A. JOHNS

Welsh National School of Medicine
University of Wales, Cardiff

What computers mean to the great British public

THOSE in socio-economic group A/B will no doubt have noticed in the Observer Colour Magazine, and sundry other meaningful publications, a series of ads from IBM.

It appears that we Brits still regard computers with awe and wonder, and that to prepare the way for the IBM Personal Computer, need demystification.

Thus we see in the advertisement Joe Public extolling the virtues of computers and how they have improved his lifestyle; to the extent of a rather twee four-page, full colour tableau depicting a large number of Joe (and Joanna) Publics doing just that.

We have in our possession one of the original drafts of this now legendary ad, rejected by Big Blue

for some reason or other, and dutifully bound to reproduce it for our readers' elucidation.

It sheds light on the current perception of computers in society as perceived over Downtime.

1984 and all that

Co-op for contractors

CONTRACTORS fed up with the agencies they work for can now join a computer people's co-operative. It will operate along similar lines to the agencies, charging client companies a fee, and paying a proportion of this to the contractor.

The difference is that the "agency cut" will be pooled, and the trade surplus shared out at the end of the year to each member of the co-operative according to the financial value of his contribution.

The co-operative is the idea of Ronald Snape of Chelmsford, Essex. So far about 20 mostly experienced contractors are interested in joining, but Snape is actively seeking new members.

These people cover a broad area of expertise, but mostly have between eight and 10 years of experience, Snape tells me. "Our original thinking was of a minimum five years' experience. But the most important thing is enthusiasm to get involved."

Snape believes the co-operative will appeal to companies by offering the services of a professional body which understands the job. Many agencies, he says, do not put the right person forward for contracts. "Sometimes I have been completely underpaid to cheat," he says, "working in a fairly junior capacity."

In a sense the contractor will be working under his own agency, says Snape. Apart from financial benefits, he expects that there will be an improvement in the quality of the jobs to be done. There will be less of the boring, repetitive work that is the parole of so many contracts, and more control over the kind of applications.

"Initially all the work will be on-site," says Snape, "but an increasing proportion will be in-house."

One possible direction of the co-operative is toward the forming of a more conventional type of software house.



Series 1 sideline fills open market

THERE are not many vacancies for Series 1 programmers and analysts, so what happened to the people who were laid off when Amba Software dropped the commercial applications side of its business?

After forming Lizline, Denton enticed yet another man away from Amba, Paul Sloka, now his right-hand man.

According to Denton, Amba's decision to forsake commercial Series 1 applications left Lizline an open market. The first big contract was a label printing system.

Picture shows (L to R): Denton, trainee Mike Ceserari and Sloka.

Bookings conversion problems

LIKE most computer applications, the theory behind booking software is simple. Like many applications, there are niggling practical and political (with a small p) difficulties.

So Glen Bryan of Ticketmaster found when in charge of booking software developed for theatres for use in UK theatres.

Many UK theatres have "private property seats", for which the theatre keeps all the profits while the "venue", or organization producing the entertainment doesn't get a furthering. In the UK, the venue owns all the seats.

The private seats are usually best, says Bryan, and the software had to be rewritten to make sure they were the first to be filled, as much as 60% of the software to be changed.

The Ticketmaster system has already proved successful for five theatres of the Wyndham's Theatres group. It runs from terminals linked to a central file of equipment PDP-II, and enables theatregoers to book tickets at the venue from any booth.

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VDU operators have a glaring problem.

Polaroid CP-70

Document 4464A. Now on. Page 1 Line 30 Position 2

The text on this screen is sharper, clearer, and easier to read.

That's because there's a polarized filter on it. The Polaroid CP-70 Contrast Enhancement Filter for Visual Display Units. It increases contrast, and dramatically reduces glare. So it also helps to reduce eyestrain. Which, according to major health studies, is a problem affecting over 80% of all VDU operators.

When your operators don't strain their eyes, they become more alert. This helps reduce careless errors. And helps increase productivity.

Alternative solutions aren't so effective. Tinted glass, for instance, doesn't stop glare completely. Etched screens reduce sharpness and fail to improve contrast. And a massive office overhead of lighting, walls, and windows causes unnecessary downtime. Besides costing a fortune.

Fortunately, Polaroid have come up with the clear answer.

Each year the number of people using Visual Display Units increases.

And, each year, so do the problems which VDU glare causes. Studies have shown that over 80% of operators suffer from eyestrain, which, in turn, leads to tiredness, carelessness and lower productivity. It also increases absenteeism.

However, Polaroid have found the answer. The CP-70 filter.

As you would expect from a company of Polaroids' reputation, they haven't just reduced glare, they've eliminated it. The CP-70 filter comes in a range of sizes which fit easily onto every type of display terminal. And once one is fitted, it should never need changing.

Cave Tab have been appointed Main Distributors throughout Britain and Europe. So, along with Polaroid's superb product, you also get our exceptional back-up.

We believe you should see the Polaroid CP-70 filter straightaway. Almost every company which has bought one

has discovered such great advantages that they have come back for more.

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Packing an expert's brain into a system

HOW do you build an expert system? As usual not even the experts agree on that one.

But most would agree that an expert system is not a replacement for the expert but a kind of consultant, able to perform some of the more mechanical functions of the brain.

Most would also agree that the hardest part of expert system building is in knowledge engineering, the process of transferring the brain of an expert into a computer.

Where the expert system builders disagree is on how this should best be done. David Hawkins, who recently set up an expert systems division at Racal Decca, aimed specifically at the oil industry, believes the problem lies in getting the experts to make specific statements on how to solve problems.

Experts use implicit communication, he says. And the way they solve their problems in the real world is not the same as the way they describe their solutions to the expert systems builder.

Hawkins believes part of the answer is to employ domain specialists, who understand the area of expertise being computerised. In Racal's case, this means recruiting people from the oil industry.

This is fine if you are building just one kind of expert system, but impractical if you are in the business of developing expert systems for many applications. Systems Programming Ltd has polished the rule-based technique pioneered by Donald Michie, among others, at Edinburgh University.

The result is a package called Sage, which was announced in May 1982. So far nine Sage systems have been delivered or ordered, and SPL's Mike Barratt reports a phenomenal interest.

ICL, for one, is using Sage at its West Gorton, Manchester development centre for projects associated with the introduction of its DMI and Estrel main-frame computers in 1984/85.

With such a wide range of potential applications for Sage, it is not surprising that unlike Racal,



MICHIE... pioneered the basic expert systems, polished SPL and wrapped up as Sage.

SPL does not believe in employing domain specialists. Instead it employs knowledge engineers who are typically ignorant of the application they are working on.

Theory is often led on a long expedition, and this is no exception. "It is an advantage if an engineer knows nothing," says Barratt.

The theory is that sometimes an expert takes too much for granted. The implicit communication described by Hawkins is different. The difference is that SPL believe that these implicit assumptions must be broken down by asking direct questions.

Only then, SPL believe, can a truly useful model be built.

One application that SPL is completing is a political risk system developed for Shell as a demonstration of Sage's capacity.

Workplace is compiled by Philip Hunter and Andrew Thomas.

PUZZLER

THIS week you are given an isosceles triangle with a 16cm base and two 17cm sides. The problem is to find the base measurement of the only other possible isosceles triangle which has two 17cm sides and the same area as the first one. See page 43 for solution.

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10.00-16.30 (final day)

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DEVELOPMENT AIDS

At the recent Cincom User Conference, Mike Borton, project manager of manufacturing company Ward & Goldstone, called the fourth generation language Mantis one of the most remarkable software products he had come across. The product, he said, had an "immediate, profound and lasting impact on all aspects of system development." That was pretty strong stuff, but it came from a man who

is not known by his colleagues for being free in his praise. Borton was followed on the programme by the project manager of the Strips Products Group at British Steel Corp., and he described similar experiences with Mantis.

While not wishing to get on any particular company's bandwagon, it seemed these user views deserved a wider audience. An article based on Borton's speech to the

Cincom User Conference follows.

Borton also evaluated a rival CICS applications program generator called UFO, which is less powerful but still very successful.

On the facing page Anthea Ballam reports on the experience of British Shipbuilders, which opted for UFO in preference to Mantis.

How Mantis was the answer to a user's prayers

MANTIS was purchased by the Ward & Goldstone group of companies in June 1981, to provide a prototyping/system design facility and improve the quality of communication between the system designer and the application programmer. This had been identified as the most obvious barrier to effective and efficient development.

A brief "learning curve" period was followed by the development of a pilot application system to evaluate Mantis' facilities and performance characteristics.

The success of this initial project led to the use of Mantis in a variety of applications, and persuaded the company to adopt Mantis as its strategic online development system.

In the mid-Sixties Ward & Goldstone established a central data processing division, the activities of which were based around an IBM 360 Model 25. Currently, the division operates an eight Mbyte IBM 4341 model group 2 with both CKD (3340/44) and FBA (3340) DASD and (3420) tape units.

The system runs under VM/SP which supports two complete DOS/VSE systems for production and testing. The division adopted VSAM/PL/I as its standard access method and DBMS. Until recently PL/I was the sole development language, although a limited Cobol expertise was available.

The total staff is 28, including operations and data preparation, three analysts, five programmers and three technical support programmers. Two of the major operating divisions have a systems development manager who is responsible for all aspects of planning

and liaison with the central division.

The first applications handled basic book-keeping functions, and the early years of development followed a classical path for a medium scale batch installation of that era.

Four years ago, it was decided to embark on what was, for group data processing, the most ambitious project it had yet undertaken - the development of a comprehensive online production planning and control system. This development was to be based on the IBM application products CoCo and Capos.

The early stages of this development proved very successful. But before long it became apparent that user acceptance was limited. The quality of screen presentation was such that users frequently found information confused and often difficult to apply in an operational environment.

The data processing division accepted that there would have to be major revisions to the system if the project was to continue. This meant that substantial parts of CoCo would have to be rewritten.

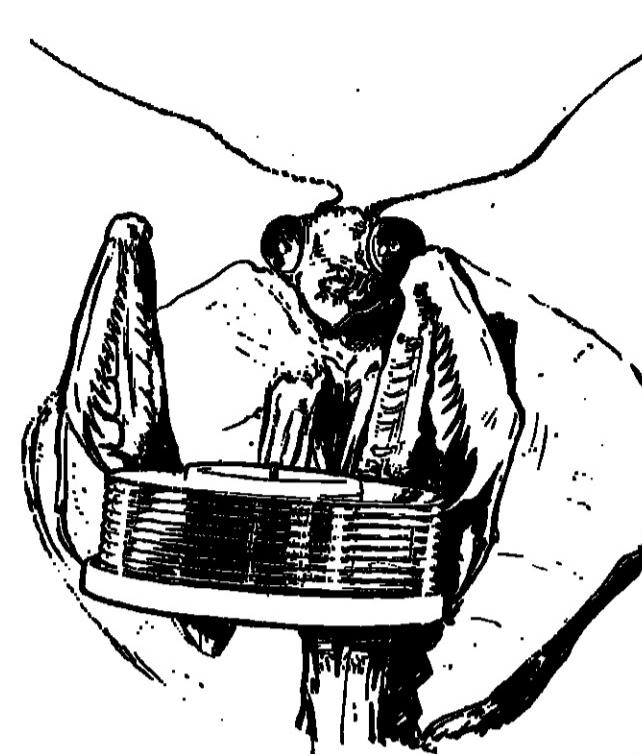
The division embarked on a detailed appraisal of the available development software, Elias, SDF, CICS-DMS and 8100-DMS all came under scrutiny, the most successful of these being the 8100 version of Development Management System, which made a substantial contribution in the early stages of the project. It was, however, extremely inefficient and required an 8100 processor on which to run, which unfortunately, the division only had for a limited evaluation period.

It was thought that there should be more cost-effective solutions than using an 8100 processor for prototyping mainframe systems. Nevertheless the 8100-DMS experience enabled the division to identify the facilities and functional characteristics of the "ideal" system. The division extended its researches to the non-IBM software market which among other products led to Cincom's Mantis.

Mantis had an immediate, profound and lasting impact on all aspects of system development at Ward & Goldstone, and caused the data processing division to revise its working methods fundamentally. Far from being just another piece of system and application software, Mantis provided the most comprehensive and flexible online application system, and introduced an entirely new philosophy which currently dominates thinking in the division. The benefits of using Mantis are legion.

The system is comprehensive. It provides facilities for screen and data structure design, and interfaces directly with the Total and DL/I databases and VSAM data sets. Of particular importance is the structured procedural language which is the most powerful aspect of the system.

Mantis does not operate on the basis of parameter lists or a "fill in



Mantis introduced an entirely new philosophy to Ward & Goldstone.

the blanks" technique, but has a powerful procedural coding language which commands it to development staff, and thereby provides a clear and acceptable migration path.

The batch functions which play such a prominent role in conventional developments - compilation, map generation and linkage editing - are completely absent from Mantis, and this can reduce substantially the demand for what is frequently a very high resource-consuming function.

The sheer power and efficiency of Mantis code was the aspect of the system which had the most dramatic impact during the early days at Ward & Goldstone. Even though Mantis was only being used in a prototyping role, it was readily apparent that it did not suffer from the performance degradation of earlier systems such as PL/I equivalent.

The CoCo program was 1,100 lines of code and the PL/I version 1080. Both these programs used a view of the database which contained 19 program communication blocks (PCBs) - a Total user may require a PCB to a reference variable. By any standards the programming was extremely involved.

Furthermore, complex transactions were being successfully accommodated in far fewer lines of code than would be conceivable with PL/I or Cobol. Ratios of 10 lines of PL/I to one line of Mantis were being achieved and in fact this has come to be considered as the "base line".

Mantis successfully fulfilled the role of a system design facility and made massive reductions in the cycle time of design project. And due to its greatly enhanced speed of operation, Mantis enabled the analyst to maintain a close liaison with the user throughout the design stage. It also allowed the DP division to present to the user a range of alternative solutions and demonstrate these solutions in an apparently operational system - a facility which is barely conceivable in a conventional environment.

It only remained to determine whether Mantis performance characteristics could stand direct comparison with those of conventional high level languages, and the company would have at its disposal revised CoCo modules. Inventory accounting was required by a major user division several months earlier than had originally been scheduled and several new facilities were requested.

The development and installation of the complete suite took five weeks. The new facilities which included online valuation (standard and actual), kitting, when-used and single-level explosion inquiries, and extended online audit and search facilities required an additional three weeks effort.

The system repreached the equivalent of 22 CICS transactions and by conventional standards would have called for one third. In the division's annual capacity, the division's annual capacity, it was a result of calm rational discussion, but because of crisis.

The elimination of batch functions and the reduction in volume of code, coupled with the inherent ease of use of the system, had provided the quantum leap in productivity that the company had been seeking. The decision to give total commitment to Mantis came not as a result of calm rational discussion, but because of crisis.

Early in 1981 Beattie found him-

The order processing system, which by now was in its third month of development, was already three months behind schedule and a review of the entire project showed that there was no chance of maintaining the existing schedules if the project continued along conventional lines. The old system had already been specified so the application of Mantis would be a superb test of its ability to reduce development times, in a "real" project environment.

Using Mantis the project was back on its original schedule within two months with only 50% of the personnel initially allocated to the project.

The impact of Mantis on manufacturing development has been similarly dramatic. DP was in the process of delivering several of the re-written CoCo modules to the user divisions, assured that the level of acceptance is now far higher due to the substantial input from the users and the close and continuous liaison which has been made possible. The entire development thus far has only required the full-time commitment of one analyst and a senior programmer, with minimal support from an additional programmer.

Since 1981 the political climate has changed dramatically. British Shipbuilders found itself playing a key part in a military action that would have seemed quite unbelievable last year.

The system which was selected on the basis of its productivity has proved to be a thoroughly useful software facility enabling the hard pressed data processing department to cut corners.

The dispersal of the main ship assembly companies - in the North-east, Clydebank, the North-west and Scotland - is historical, and reflecting this, the main computing facilities are located in Newcastle upon Tyne and Govan, on the outskirts of Glasgow.

Tyne's regional centre is based on a 16-Mbyte IBM 3033, while Govan uses a 3032. Both these facilities are linked. The users are as widely spread as British Shipbuilders itself; they use online terminals located throughout all the ship building, ship repair and engine building concerns. The company has about 70,000 employees in all.

He first put this idea to the test in July last year on a pilot scheme, which involved the duplication of a project management system run on a Hewlett Packard 1000.

"We did a detailed evaluation and tested it in a number of ways," says Beattie. "With the existing system of the HP mini we took the file structures, reorganized them using UFO and produced a parts file, stores file, invoicing system and some other applications. It took one man three and a half weeks. He had never seen the product before, he simply learned as he went along."

Following completion of this test, British Shipbuilders has used the data set and management facility in a range of applications areas, rapidly designing and implementing programs.

"That's starting to come good and we have been getting a lot of orders lately. With this surge of activity the computer services division must get things right, and of course we have many areas of activity."

It takes one day to train the average programmer or analyst in the basic techniques of the new system," explains Beattie. "From then on those people can write applications, screen enquiries, and the production programs. It's a quick learning cycle."

Throughput of new software can be effectively speeded up. Some three or four major applications can be worked on simultaneously, with target dates for completion between three and six months. At the same time Beattie knows that from a user's point of view UFO-produced transactions cannot be differentiated in any way from traditionally written CICS transactions - existing menu panels continue to operate unchanged.

When IBM announced its availability in 1979, CoCo was able to address a number of areas, like bill of materials and inventory accounting, but we found in our case that it was not so much a complete package as a basic system framework to build on."

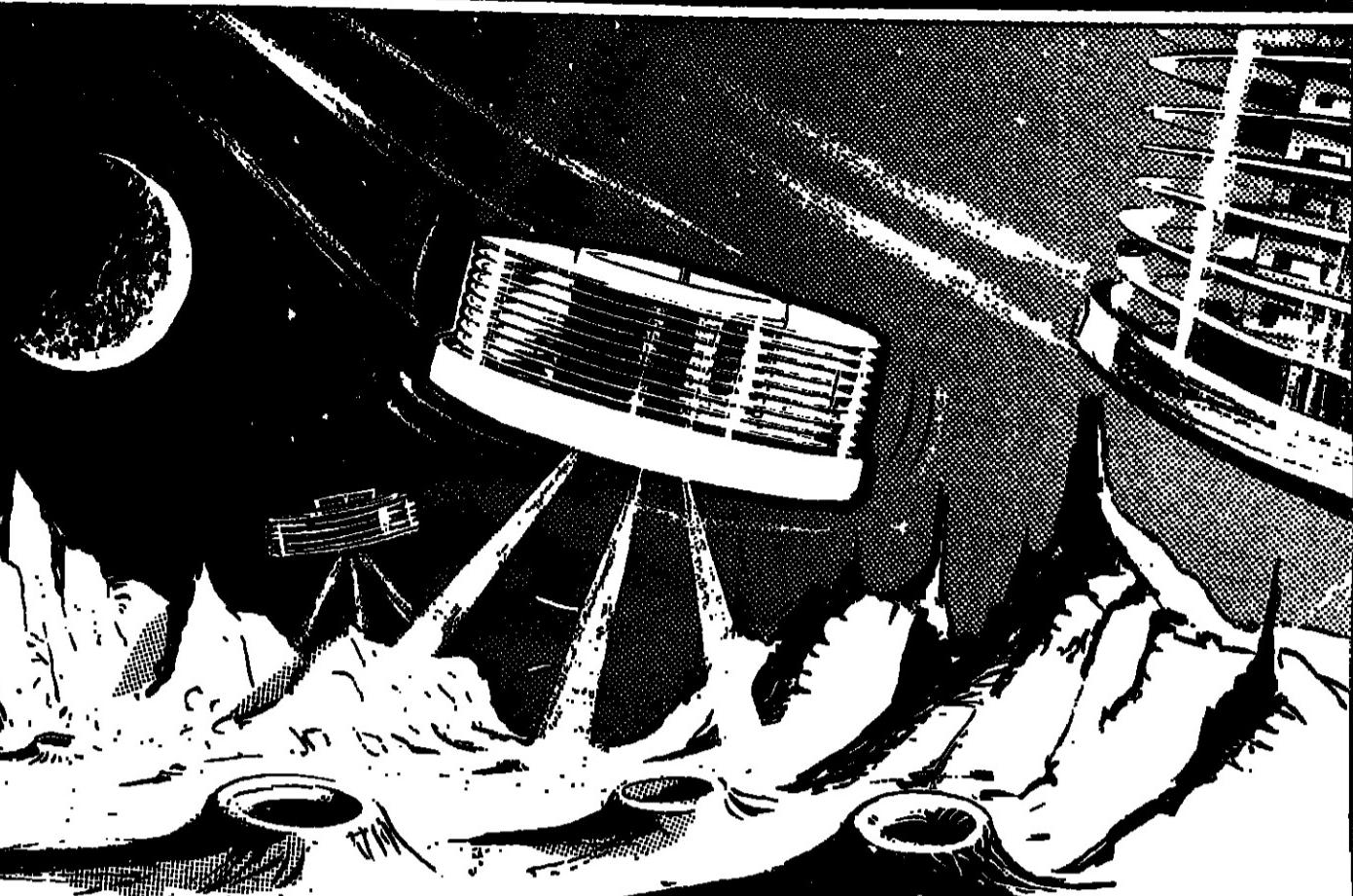
"In the UK this pattern is also being adopted. Beattie and his colleagues are introducing software development tools to accommodate this trend."

British Shipbuilders' goods are never production line items - each is unique, whether it is a crude oil tanker, cargo ship or tug.

Early in 1981 Beattie found him-

DEVELOPMENT AIDS

UFO helps ship building to keep afloat



Appearance of UFO meant that system developers at British Shipbuilders did not have to contend with alien methods of working.

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Surveys of visitors to computer exhibitions demonstrate that users prefer to attend a show which is local to them. Compec North, for the second time, and Compec Scotland were enthusiastically welcomed in 1982, and both events are being expanded for next year.

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PRODUCTS

Programming of logic devices made simpler

MICROSYSTEM Services has launched a system developed by Data I/O to simplify the programming of programmable logic devices. Called the Programmable Logic Development System (PLDS), it comprises a LogicPak that will plug directly into existing Data I/O PROM programmers, a range of programming test adaptors, one for each manufacturer's family of logic devices, and high-level software which allows data to be input in Boolean equation form.

During development of the PLDS, Data I/O worked closely with semiconductor manufacturers, and has written approval for the PLDS from each manufacturer — including AMD, Harris MM1, National Semiconductor and Texas Instruments. Over 60 devices including PALs, FPLSAs, FPLAs and FPGAs are supported.

Operation of the PLDS to program a logic device is simple, says Microsystem Services. Having first developed the logic design, the PLDS software is used to generate the fuse table corresponding to that design. Once the fuse table is loaded into the programmer memory the logic device can be programmed.

Programming requires the appropriate adapter to be selected, a four-digit code entered (family and pinout codes) from the keyboard and the start button pressed. Once the device has been programmed, the LogicPak automatically tests it.

Automatic tests carried out on programmed devices include a full check of the memory array, a new logic fingerprint test and an optional structured test, developed by Data I/O, to 100% test certain specific input states. The fingerprint test provides a pseudo-random sequence of inputs to be applied to a device and a test sum is derived from the device outputs.

Once a device has been programmed and guaranteed working in a circuit, the test sum forms a standard against which all other devices can be checked. A standard logic fingerprint test takes about three seconds and can, therefore, be used on the production line without significantly hindering throughput.

Until now companies wishing to use programmable logic devices often had to convert the original design, which may have been in the form of truth tables, state tables, Boolean equations or flowcharts,

into a strictly formatted fuse table using manual methods. This was both confusing and time consuming. It was also easy to make an error when defining the fuses or when converting to programming

it. The different design adapter packs each contain the appropriate high-level software package for different manufacturers' devices. For example, the PALASM package accepts Boolean equations and generates fuse tables for PAL devices.

The Signetics H & L package uses truth tables to generate fuse tables for Signetics PAL devices.

Since all programming is software selected, new logic devices developed can be accommodated. Data I/O has agreed to support all new devices that enter the market.

The PLDS system will operate with the System 17 with remote control, System 19, Model 29A Programmer, or the Model 100A Production Programmer. The Model 200A Data Control Unit can be used for storing the programming data on disc.

**Microsystem Services (CW),
Duke Street, High Wycombe,
Bucks. Tel: (0494) 41661.**

Sequential events recorder

MODERN power generation and industrial process plants require that a wide range of system parameters be continuously monitored and displayed. A permanent record of the system's operation must be maintained especially during critical periods of process malfunction or shutdown. The information required is essential for efficient process or plant re-start and repairs or maintenance of equipment.

It is to meet these and future requirements that the Ronan Series X500 Sequential Events Recorder (SER) has been designed. The multi-microprocessor based contact status acquisition system allows the sequence of event occurrence, both alarms and return to normal, to be displayed and recorded with a resolution of one millisecond. The critical plant parameters are monitored by transducers with contact outputs located at considerable distance from the control room area.

Costly cabling requirements from these remote areas may be avoided by acquiring the contact status information from a network of remote multiplexers, each connected to the central control unit

(CCU) by a serial data cable.

Ronan Engineering (CW),
212000 Oxford Street, Woodland
Hills, California 91367.



Ronan Series X500 Sequential Events Recorder.

Failure to use equipment to its fullest extent is a waste of money.

The new T-switches from Inmac

enable systems to share facilities — for example two computers can share one printer putting it to full-time use instead of having the expenses of two partly used printers.

Basically, the T-switch connects directly to the computer I/O port

using the standard RS232C interface cable.

Various peripherals such as VDU's, printers, modems, etc. can then be plugged directly into the T-switch thus allowing a single port to control from two to six separate peripherals without any chassis expansion, and without resorting to disconnecting and reconnecting peripheral cables — a practice which can easily cause damage to connector pins and interfaces.

A selector knob on the front panel allows the appropriate peripheral to be selected without removing leads or re-wiring. It can

be located wherever convenient and is quick and easy to install, according to Inmac.

Inmac (UK) (CW), 18 Goddard Road, Astmoor Industrial Estate, Runcorn, Cheshire WA7 1 QFO. Tel: (09285) 67551.



Inmac's T-Switch.

T-switch saves the cost of extra peripherals

FAILURE to use equipment to its fullest extent is a waste of money. The new T-switches from Inmac enable systems to share facilities — for example two computers can share one printer putting it to full-time use instead of having the expenses of two partly used printers.

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Z80 floppy controller

A Z80 floppy disc controller card, available mail order from Electronic Hobbies, is priced at £270 plus P&P at £1.75. VAT must be added to both the card and P&P.

The card is of the standard Euro-

card size (100 x 160 mm) and has DIN 41612 indirect edge connectors. It is CP/M compatible

with extensive use of ID connectors

reducing system implementation

time and includes LSI, VLSI and memory devices

mounted on IC sockets. The card

has a full automatic daisy chain

priority for interrupt and direct

memory access functions. It is

fully compatible with other cards

in the series, as part of an extensive

Z80 Eurocard microcomputer

system.

It supports up to four eight-inch

or three five-and-a-half-inch

drives.

Electronic Hobbies (CW), 17

Roxwell Road, Chelmsford,

Essex CM1 2LY. Tel: (0245)

62149.

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COMMUNITY OF THE FUTURE

Technology tops the bill at a new Disney World site...Donald Kennett reports

Disney gives showbiz treatment to computers

LAST week it was the computer's turn to get the Walt Disney showbiz treatment.

Epcot Centre, the latest addition to the 28,000 acre Disney World site in Florida, is even more dependent than its predecessors on computers. Besides which, Disney management had already found that the amount of interest shown in its computer systems made it inappropriate to keep them tucked away out of sight.

Walt Disney himself, who died in 1966, had planned an "experimental prototype community of tomorrow", Epcot, in which a variety of advanced technologies would be tested for their ability to solve problems in the outside world.

Buying a site that is twice the size of Manhattan Island has given his organisation the scope to expand at its own pace and to avoid being overshadowed by other businesses springing up on its doorstep in response to the

to put in a total of \$300 million over the next 10 years, making for an unusual relationship with the companies such as Sperry Univac and American Telephone & Telegraph for which Disney is also a customer.

The computer room housing the Sperry 1100/60 at the heart of the Disney management system is used as the backdrop for a showbiz presentation on how friendly, clever and important computers are.

The presentation - complete with song and dance routine - uses the video image of a supposedly Cuckney character called Earle the Pearly projected into the room so that he appears to dance on top of the equipment. How it is done is kept secret.

The usefulness of computers is also illustrated by four computer games played on touch-screen terminals in the display area. The games symbolise the involvement of computers in industry rather than teaching anything about how they are used or how they work. In the factory game, for example, the player points to components of the American flag to feed them to an assembly line.

To appreciate the significance of computer-aided design another game invites you to design the layout of a roller coaster and then simulates a ride on it.

Disney World's aim is always to entertain and arouse interest rather than to inform in any kind of detail. Finance vice-president Mike Bagnell said that discussions with companies about participating in Epcot Centre stressed that they should be willing to respond to enquiries from the public that were stimulated by the show. They had to believe in the Epcot idea and be prepared to put in large sums of money, he said.

As well as benefiting from the publicity value of sponsoring Epcot's computer pavilion, Sperry plans to use the centre for management seminars and meetings with users and prospective customers. This is largely because it is not involved with consumer markets as are the sponsors of the other pavilions - General Motors on transportation, Exxon on energy, AT&T on communication, Kodak on visual imaging and Kraft on agriculture.

Epcot Centre adds a sort of permanent world's fair, with pavilions sponsored by a number of countries and companies. The nine countries, including the UK, China and Japan, are illustrated by mock-ups of their traditional architecture and shops selling goods such as tea and chin in the case of the UK. The UK scene also includes a pub called the Rose and Crown and a canal lock.

The six US companies

sponsoring pavilions are expected

of 150 programmers was assembled to transfer the software to Sperry Univac machines and much of it is still running.

Disney's early applications were accounting, management

information and reservations, centred on its head office in California. The Florida site has added extensive networks of

terminals, sensors and actuators of various kinds, with distributed minis and micros acting as controllers and concentrators.

The traffic generated in Florida is overtaking that in the California operations and, as the older Univac 90/80 machines in California are phased out, operations will be transferred to the 1100/62 that was installed in Florida last year.

"We felt that communications

was going to be the key to the

■ Turn to page 23



The engaging SMRT-1 robot, strikes up a conversation with first guest to visit Sperry Univac's data processing centre, Alicia, the first guest to visit Sperry Univac's data processing centre.

COMMUNITY OF THE FUTURE

Sperry Univac computers play a starring role in the "Astute Computer Revue" at the Epcot Centre.



A scene from the Spaceship Earth show at the Epcot Centre, as Disney engineers program the animation in the pre-computer press room.



BAGNELL . . . "Must believe in the idea".

Everything that moves is controlled by micros

■ From page 22

Eventually it plans to use optical fibre for all links on the site. This is not for the reasons used in any of the glamorous arguments for futuristic interactive cable television networks being heard in the UK currently, but for protection against electrical interference and lightning. Florida has the highest incidence of lightning in the US and it causes several breakdowns a year.

Optical fibre cable is already installed all over the site ready for the completion of development work on a three-state signalling system that will enable network control to tell the difference between a line fault and a terminal or sensor fault. Meanwhile it uses duplicate circuits based on the methods it has previously used.

The company has already developed its own transmission protocols to give error recovery on high-speed 112 Kbit-per-second links where there would not be time for re-transmission.

Disney has a policy of using conservative techniques where

they suit the application, as well as developing new methods for improved results. It also wants to make successful developments available to outsiders. The World Key information system, for example, was a joint development with Bell Labs.

The intention is to turn it into a commercial system applicable to airports and other public places, but at present it is regarded as experimental. It combines images held on video disc with updateable text and animated graphics from a computer to present a wide range of information on the site and its exhibits to visitors.

The innovative systems side of the Epcot exercise is as yet a minor part, hidden pretty much in the background. The hallmark of the Disney approach is the way the exhibits are presented. The site abounds with different types of vehicle to take visitors around both indoors and out.

The indoor ones are basically like a fairground ghost tunnel and they take you past life-size animated puppet-like characters set in scenes that make simple

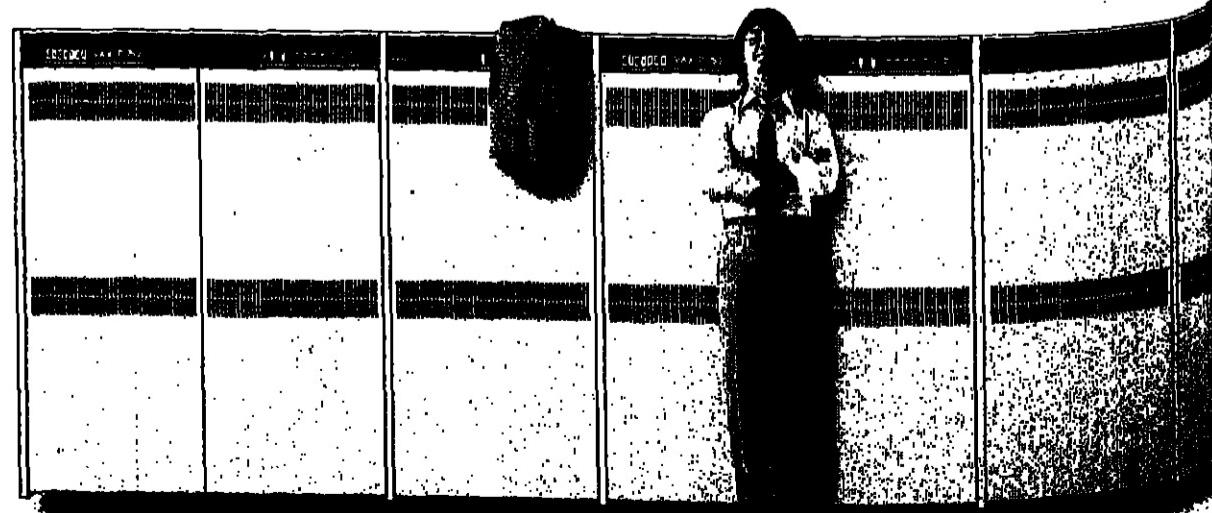


It may look like London or Stratford, but this is the scene in front of the Rose and Crown pub at the Epcot Centre.

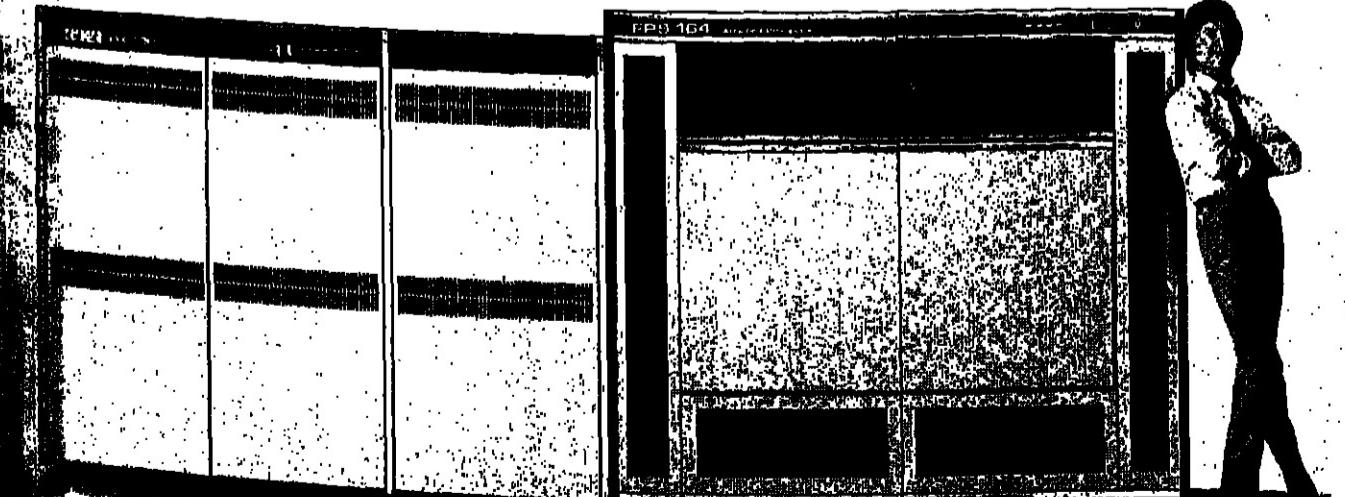


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Monorails circle the perimeter of Disney's Future World.

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PRODUCT UPDATE

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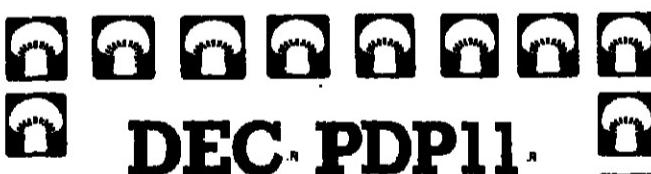
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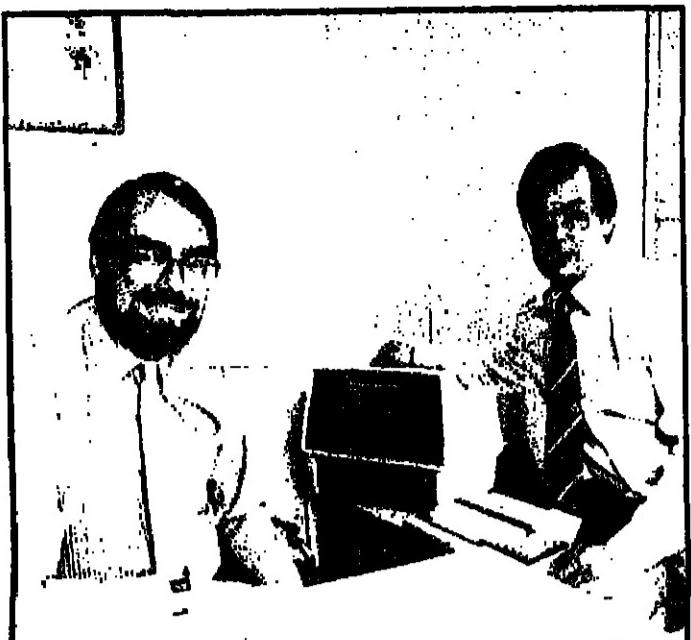
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PEOPLE



TIMSON (left) and MARTYR... Getting Vector into Europe.

Vector into Europe

US MICROCOMPUTER manufacturer Vector Graphic has announced its entry into Europe, and has named Nigel Timson general manager European operations.

Timson trained as an accountant with Ernst & Whinney before working for ICL in its UK corporate offices. For the past five years he has held senior financial and operational positions with TRW Datacoms of Los Angeles and Datapoint of San Antonio. Timson will provide marketing, technical and training support to Vector's distributor network.

Brian Martyr, formerly in senior sales and support management with Digital Equipment and Singer Business Machines, joins Vector as European sales and marketing manager.

Trend Communications, the data communications division of Pitcom, has appointed Tony Stocker and Martin Dowsett as marketing executives. Stocker, who joins as marketing services executive, was previously with Osram-GEC as product manager. Dowsett, who has been appointed product marketing executive, was previously sales manager with Siemens.

Centronics UK has appointed Anita Davey and Joanna Drewett to its customer support team. Davey has been with the company for two years, in charge of contract administration in the field engineering department. Drewett, who joins as internal sales executive, was formerly in charge of sales administration at biochemical supplier Boehringer Corp.

The appropriately named Ian Cleverley has been awarded first prize in the educational software category of the BCS (Oxford branch) Schools Computing Competition. Cleverley, from St Birinus School in Didcot, won the prize for a stage lighting project.

The second category, project work for CSE 'O' level, was won by the sole entrant, Anthony Bush of Selsbury School, Wantage, who produced an IQ test based on a series of tests developed by Professor H. Eisenck. Simon Atkin of Wantage School, won first prize in the open category for his computer dating project. A fourth category, for primary and middle schools, received no entries.

Stuart Morgan has been appointed principal computer operations assistant in the management services department of London Transport. He has been with the organisation since 1978.

The Banking Insurance and Finance Union (BIFU) has appointed Terry Moloy as deputy general secretary. He was formerly an assistant secretary of the union and BIFU's chief negotiator for Williams and Glyn's Bank.

Two management appointments have been made at SGS. Peter Savage, who has been responsible for sales to the professional market is now promoted to marketing and market development manager. Albert Shipton joins the company from General Instrument Microelectronics, where he was European marketing manager. He takes responsibility for sales and services to SGS's OEM customers as sales manager.

The new post of marketing manager at Lawtons has been filled by Howard Grey, who was formerly in marketing with Sigma. Lawtons is part of the Oxfex Group.

DIARY

OCTOBER 29 Jubilee dinner, BCS Birmingham, Coventry and Wolverhampton branches. The Council House, Birmingham. Tickets limited. Apply to Martyn Davey on 021-743 4222 ext 2234.

Talk by Rt Hon George Thomas, MP, Speaker of the House of Commons. BCS and other professional associations. Town Hall, Cheltenham. Apply early to D. Went on Gloucester 416301.

NOVEMBER 8 Artificial intelligence - the extent of AI and its relationship with the fifth generation. IDPM, Scottish branch, Edinburgh University, Students Association, 60 The Pleasance, Edinburgh. 7.30.

NOVEMBER 2 How can we improve the DP industry's image? IDPM, Kent branch/BCS Kent Branch, University of Kent, Canterbury. 7.30.

NOVEMBER 3 Tomorrow's programmers - where are they now? IDPM Central London branch, Altergo, Im-

■ Cifer Systems has reorganised its sales department and appointed Mike Ludlow as factory sales manager. He has been with the company for five years as South-west area manager.

■ New chairman of the Institution of Electrical Engineers (IEE) is group managing director of Philips Business Systems Brian Manley. He has been a Fellow of the IEE since 1974.

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■ Microsystems Services (MSS) has appointed Howard Griffiths from its sales office manager to operations manager and has confirmed the appointment of Michael Sykes as product specialist for its instrument product group. Sykes was national service manager with Allen Organs before joining MSS earlier this year.

■ Neville Barber (above) has been appointed new business consultant at MSA. He was previously with Touche Ross for four years, working as a chartered accountant.

■ Ted Clark has joined Delta Data Systems as senior sales executive for the company's Southern region. He was previously with Nixdorf.

■ John Patterson has left App Computer, where he was national sales manager, to join Epsom UK as national sales and marketing manager.

■ Rediffusion Computers has made two appointments at its Crawley offices. Charles Anderson, formerly product planning specialist in the company's technology department, has been promoted to special projects manager, product marketing. Sue Clacher, who joined the company in 1978 as senior systems analyst, becomes special projects manager in the company's product marketing department.

■ John Winnington has joined MSA (Management Science America) as technical support manager. He previously held a similar post at Reed Stonehouse.

■ CMG Information Services for Banks has appointed David Byres as an associate director. He was previously a senior consultant for CMG Scotland.

■ CSL Business Systems has appointed Gordon Stuart as sales manager. He joins the company from Agovox where he was national sales manager.

■ Former company management services manager at Marconi Radar, David Keable, is now a director at Selven Manufacturing Systems.

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■ Jacqueline Hutchins (above) has joined WordNet UK as regional sales manager. She remains a partner at Pressure Points, the word processing bureau she co-founded in 1979. Before that she was a sales executive with AES UK. Hutchins joined AES from Rank Xerox UK, where she was marketing support specialist.

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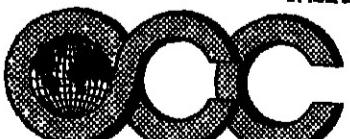
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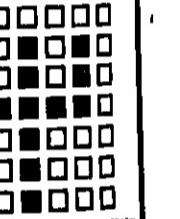
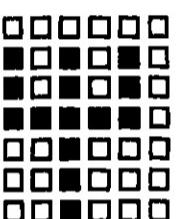
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Apply in writing with full curriculum vitae to:

STEVE WHITING OR BILL EVANS
TRIDENT COMPUTER SERVICES PLC
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COMPUTER CENTRE MANAGERS

For Our Exciting Expansion Programme

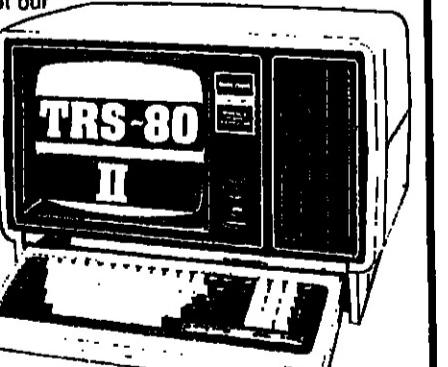
Tandy Corporation are currently operating 18 Computer Centres and over 40 Computer Departments throughout the U.K. The continued success of the TRS-80 the world's leading microcomputer means that another five Computer Centres are to be opened by January 1983, with more to follow. This means there are many challenging opportunities for managers.

Candidates, male or female, should have a background in computer marketing, sales or service, with one to three years' experience in mini or microcomputers, peripherals or related business equipment products.

Full Training in the management of our Centres will be given and during this period you'll receive an excellent base salary plus commission. On completion of the training you will be put on a salary PLUS a bonus, determined by the profit of your Centre.

If you're ready for this new challenge write with details of qualifications and experience to:

Mr. M. Smyth,
Personnel Department,
Tandy Corporation (Branch U.K.)
Tawny Tower, Bridge Street,
Walsall, West Midlands WS1 1LA.



Tandy COMPUTER CENTRES

We are a progressive expanding Company with a multi-million pound turnover, distributing frozen food to the catering industry. We have a vacancy for a

DATA PROCESSING MANAGER
to be responsible for our I.B.M. System 34 installation at our Leamore Heath Depot near Maidenhead.

Ideal candidates would be aged 23-35 with proven management skills and have experience of R.P.C.G. II, D.P. operations and systems analysis.

We offer a competitive salary and benefits.

To apply, please write, with full personal details, to Mrs Lynda Fletcher, Personnel & Training Officer, at

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The Appointments Register

On-Line Computer Operations

Expand your technical and verbal communication skills within this progressive on-line retailing environment

£7.5 - £8.5 inc.

MFI - Europe's fastest growing furniture retail business - are currently seeking additional computer operations staff for their UK headquarters in Wembly.

The installation at present houses 12 DEC PDP computers, running under both RSX11 M+ and RSTS/E, and provides a total on-line computing facility to 120 retailing outlets throughout the UK.

Successful candidates should possess approximately one year's experience in either on-line operations or communications networking and be able to react quickly yet professionally to ever changing situations.

Being part of a closely-knit, dedicated team of computer professionals, successful applicants will be given the opportunity of not just expanding their technical knowledge but at the same time combining this with a true customer liaison function.

The Company operate an unusual shift system enabling plenty of free time, and this coupled with a realistic starting salary, plus the usual large company benefits, make these positions very attractive career opportunities.

For further information please contact ADRIAN HARDY on 01 935 0871 (24 hour answering service) or Ashford, Middlesex (07842) 48026 evenings and weekends.

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Specialist Computer Recruitment Ltd
James House 46 James Street, London W1M 0HS 01-935 0871/488 0481
Bracknell, London & Manchester & Brussels & Amsterdam

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dp
Confidential Reply
Systems Designers to £18,500

Our client has an international and dynamic reputation for designing and building fully integrated software and engineering systems. New orders have provided interesting opportunities for Systems Designers to work on the development of display and data handling systems for advanced technical applications. The successful candidate should have around seven years' systems design and implementation experience, a developed understanding of real time software in a mini/micro environment, and an ability to convey ideas and concepts effectively. Additionally, some knowledge of hardware and electronics would be advantageous, but not essential. Company benefits are generous including relocation, flexible working hours and five weeks holiday.

JAS07/1

Butel Business Systems
SALES EXECUTIVES Basic to £12,000 + CAR & COMMISSION

Butel Business Systems are a dynamic and progressive supplier of Turnkey Systems providing a complete and comprehensive service to their rapidly expanding client base. This expansion has created a requirement for ambitious and adaptable Sales Executives with a successful track record gained over around two years in a relevant field. The successful candidates will be responsible for new business development and Butel would like to hear from Order Creators not order takers. In addition to a basic salary and fully expensed car of your choice, an excellent bonus structure exists which will produce on-target earnings of £25,000 per annum.

LOCATION: HAMPSHIRE

JAS07/2

dp
Confidential Reply
SOFTWARE ANALYST £10,500

One of the world's leading manufacturers of photographic materials are seeking to expand with the addition of a Software Analyst. The successful candidate will provide support to the Operations and Systems and Programming functions and the post will appeal to those candidates with a strong operations background gained in a Honeywell environment supporting Cobol and running under CICS/3.

Applicants should also have a knowledge of COBOL and a familiarity with the principles of IDS/32 and DM4 TP. In addition to basic salary and bonus and assistance with relocation, there are a wide range of large company benefits including an annual bonus and assistance with relocation.

LOCATION: CHESHIRE

REF: JAS07/3

API
PROGRAMMER to £12,000

Microcomputer Products International are leading suppliers of software for OEM based micro's. Planned expansion has created the need for an additional Programmer to provide customer support and develop programs and systems, utilising an extensive range of microcomputers. The successful candidate should have gained around five years programming experience in a large mainframe environment supporting Cobol. In addition a knowledge of Assembler is desirable and applicants will be able to demonstrate effective user liaison skills. Salary is in a range according to experience and in addition to usual benefits this position will attract free membership of BUPA.

LOCATION: BARKING

JAS07/4

dp
Confidential Reply
SYSTEMS CONSULTANTS to £15,000

Our client is an established software house providing a diversified range of services to the financial industry. Increased business has created a need for Systems Consultants to play a leading role in the major development of a number of pensions, life and corporate systems. Applicants should be highly adaptable with the ability to liaise at all levels and the potential to move into a management function. A high degree of systems design and analysis skills are required and a knowledge of pensions systems will be distinctly advantageous. In addition to salary, a range of benefits are available normally associated with the financial sector.

LOCATION: SURREY

JAS07/5

OCL
SYSTEMS PROGRAMMER £ excellent

Overseas Containers Limited, a world leader in container transport, has a requirement for ambitious Systems Programmers who are capable of exploiting their experience in an innovative and dynamic environment. The ideal candidate will have a thorough knowledge of DB and TP software (preferably IDMS, CICS and VTAM) and will form part of the TP support team. This team will be involved in major software upgrades to support an expanding TP network. Software plans for the coming year include installation of NGC/TAP, ACVT/TAP version 2, MVS/SPF and CICS 1.6. OCL offer excellent salaries and the usual benefits associated with a large organisation.

LOCATION: LONDON

JAS07/6

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Sales/Technical Support DIRECTOR DESIGNATE

circa £18,000 package

A genuine opportunity exists to become an integral part of a newly established subsidiary of an existing consultancy aimed specifically at the expanding micro business user market. The company is providing a valuable range of services from initial feasibility studies to end user training and education.

The need is for an executive who will have spent several years in a sales/technical support role and who is fully conversant with the broad range of equipment, software support and applications. Naturally the successful candidate will have dealt at senior management and director level and have the confidence to present detailed proposals to what in some cases could be an uneducated audience. Also there will be responsibility for the development of the existing sales plans and targets. It is in this area that

microAID

your experience of the market will be considered as of the greatest importance. As this appointment to a large extent, will determine the level of success for the company, an equally high level of commitment and sheer hard work will be vital.

In return, the successful candidate will be rewarded with a substantial remuneration package consisting of a salary of circa £10,000 plus projected bonuses that will add another £8,000 a year. But, of greater consideration will be the prospect of a directorship in about six months and financial rewards totally representative of the company's growth and success.

Please contact Tony Crew, on the number below or 0908 583147 evenings and weekends, who will outline the company in greater detail and answer any questions.

Triumph House • 189 Regent Street • London W1R 7WD • 01-734 9723

Help support our ICL software in Johannesburgand make a sound investment for the future

Our Client, a highly respected company, with predominant interests in the mining of precious metals, is seeking to recruit suitably experienced ICL Software Personnel to work within their Johannesburg Head Office.

As a company with vast resources, they are in an excellent position to offer a rewarding return on an investment of time, experience, and commitment, and therefore a worthwhile opportunity for personal advancement can be realised.

VME Software Support R21600+benefits

With good experience within ICL 2900 VME environments coupled with at least a 2 year exposure to COBOL and possibly FORTRAN. Duties will encompass support of operating system, and superstructure software through hands on involvement and the supervision of a small VME team. Consequently skills in project planning and team leadership are highly desirable, as are telecomms and database experience.

TP/Database Software Support R21600+benefits

To provide an efficient support interface between applications development and technical personnel. A knowledge of COBOL and preferably FORTRAN is required to enhance a sound background in TP and Database technology (preferably IDMS and RAPPORT).

These positions hold an exciting challenge for career minded individuals and an excellent package of salary and benefits (to include bonus, non-contributory pension and medical aid) will be available. Full assistance with relocation to South Africa will be offered including 3 months initial accommodation in a furnished flat, and every effort made to ensure a happy landing at Jan Smuts Airport.

Life in South Africa can be extremely rewarding, with a high quality of lifestyle coupled with reasonable living costs.

To find out more contact Graham Utton from our Advisors, SCR International on 021-238 9781 (24 hours answering service) or Cannock 3782 (evenings and weekends)

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HUNTING FOR OPPORTUNITIES?

YOU'LL FIND THEM IN CENTRAL AFRICA!

Our client in Zimbabwe is a major international British Company, currently handling approximately 50% of the country's computer installations, and keen to expand their share of the market even further. To realise this aim the company is seeking experienced, enthusiastic ICL orientated personnel for several key positions.

THE JOBS

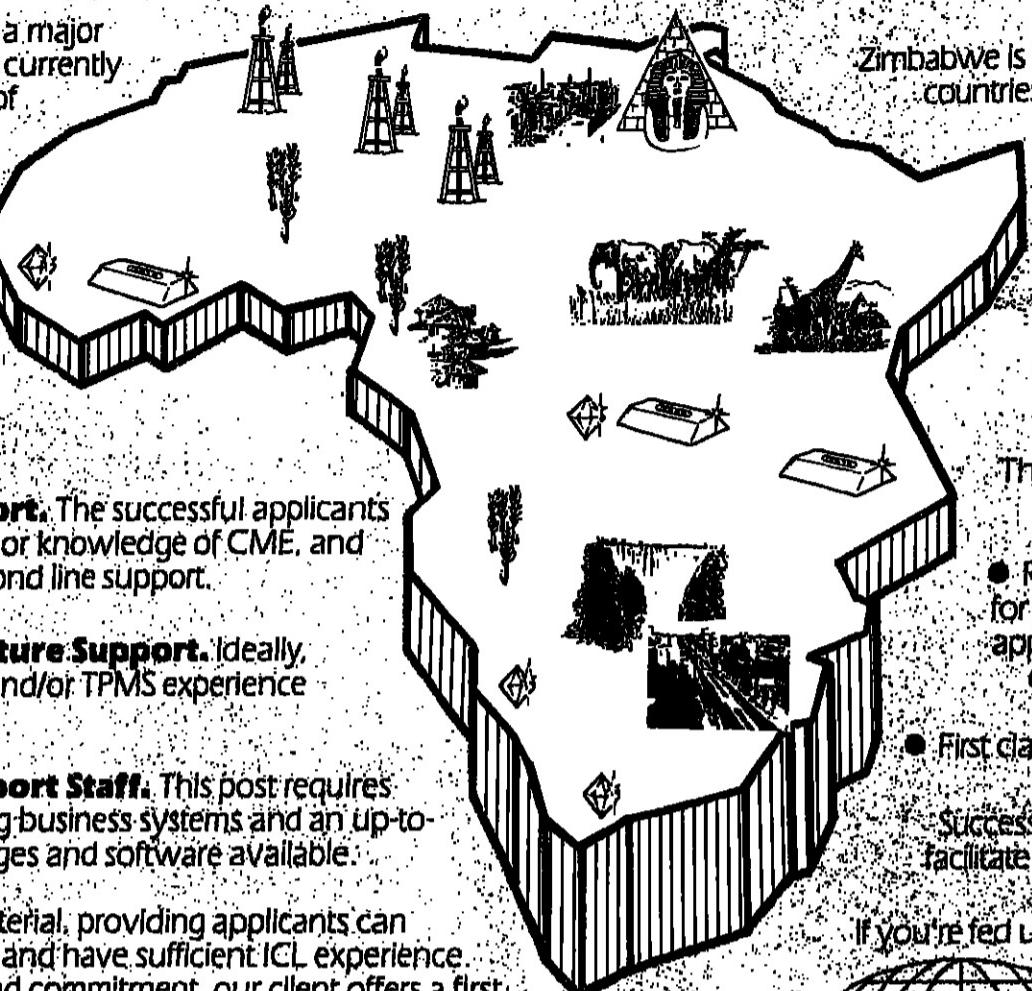
ICL 2900 VME Base Support. The successful applicants will probably have experience or knowledge of CME, and will be capable of first and second line support.

ICL 2900 VME Superstructure Support. Ideally, applicants should have IDMS and/or TPMS experience and SCI knowledge.

System 25/System 10 Support Staff. This post requires practical experience of installing business systems and an up-to-date appreciation of the packages and software available.

Age and marital status is immaterial, providing applicants can demonstrate the skills required and have sufficient ICL experience. In return for professionalism and commitment, our client offers a first class remuneration package.

All vacancies are offered on either a permanent or contract basis.



Hewitt Management Selection

A member of L.A. International Management Consultants Ltd
14225 Middlefield Road, Stanford, California 94303



THE LOCATION

Zimbabwe is widely regarded as one of the most beautiful countries in Africa, with breathtaking scenery and idyllic climate. An expanding economy, providing a sound basis for considerable industrial and commercial growth planned by the government, Zimbabwe for the next decade, offers in Zimbabwe enjoy a superb lifestyle with excellent social and sporting facilities readily available.

THE PACKAGE

The first-class remuneration package reflects the importance our client places upon the positions and includes:

- An excellent base salary for successful applicants and their families where appropriate.
- Relocation expenses and settling in allowances for successful applicants and their families where appropriate.
- Free temporary accommodation on arrival in Zimbabwe, and subsequently with finding a permanent home.
- First class medical aid, pension, accident and medical insurance.
- 24 days annual leave.

Successful applicants will receive priority treatment to facilitate emigration procedures and ensure a smooth efficient move to Zimbabwe.

If you're fed up with commuting in the rain, and feel you'd like to use your skills to build an exciting new lifestyle in the sunshine, contact the first instance Derek Crumpton 061-9414394 evenings 061-9695000

National Sales Support Manager

- Voice Communications Excellent Five Figure Salary + Car

A newly created position with one of the world's foremost authorities in telecommunications.

- an Organisation uniquely poised to capitalise on their technical superiority at the point of liberalisation in the New Year

Kent

Technical, Sales & Management Appointments



Specialist Computer Recruitment Ltd

As a long established division of a worldwide high technology group of Companies, we have become recognised as market leaders in the sale of Voice Products to Industry. With the recent launch of a technologically advanced, computerised private Telephone Exchange system aimed at medium sized Organisations, we are confident that the advent of liberalisation will result in even greater market penetration to complement our vast and varied Client base throughout the UK.

Our need therefore is to appoint an individual to spearhead our small, select pre sales group in supporting our expanding salesforce.

In addition to the obvious personal qualities necessary for such a sales orientated management function, we would wish to see evidence of a sound appreciation of telecommunications, where ideally, your experience has stemmed from a design/development function. Latterly, you will have gained significant exposure to British Telecom network practices and technologies with a full appreciation of Store Program Control PABX with experience of both hardware and software.

Whether currently employed in a similar capacity, or whether engaged in a Communications Management function with a large User, we are confident that we can offer the career minded individual unlimited scope for personal advancement.

For consideration, contact our Advising Consultant, ANDREW CARTER on 01-935 0671 (24 hour answering service) or submit a detailed Curriculum Vitae to him at the London Office.

SENIOR SALES EXECUTIVES

Realistic quotas

£40,000+ potential earnings plus car

MINICOMPUTERS

Candidates should be able to demonstrate a 2/3 year successful track record in selling minis. Applications are welcomed from all parts of the country, and in particular from Central London, Home Counties, Bristol, Leeds and Birmingham.

MAINFRAMES

Successful candidates will have at least 4/5 years of proven experience handling six figure negotiations at board level and will recognise the importance of understanding the problems that face business and the role that DP plays in solving them. Responsibilities will include both new business generation and developing existing accounts. A mature approach is called for and our client is open minded regarding age. Applications are invited from all parts of the country, and in particular, from the Thames Valley, Southern Home Counties, Manchester and Birmingham.

In order to be better placed for the rest of the Eighties, please contact PETER LLOYD. Quote ref. W623-L.

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MICRO COMPUTERS – SUPPORT

London & Home Counties

A number of exciting opportunities occur within this newly formed division of a Major International Group and with considerable further expansion planned for 1983, there are EARLY MANAGEMENT PROSPECTS.

Applicants will probably be aged 25/35 years. Educated to 'A' Level/Degree standard and have at least two years' experience in pre/post sales support coupled with a good technical and working knowledge of all/some of the following:

- Database/Information Retrieval
- Word Processing
- Accounting/Financial Modelling

CP/M – BASIC – COBOL – Comms – with some experience of IBM Protocols 2780/3780/3270. DEC – VT100 & I.C.L. CO1, CO2, CO3.

* We would also be interested to hear from Sales personnel with 12/24 months' microcomputer sales experience, preferably to multinationals. £11K+Comm.

For further information on these exciting opportunities, phone Norman Occlestone/David Wilkinson NOW or write with full C.V. to:

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London, Home Counties and Overseas

HERTFORDSHIRE. Hardware/Software Design Engineers to join a market leader in sophisticated process control systems. Experience of DEC Minis or Motorola Micros would be a decided advantage along with a degree or equivalent in a computer-base subject. Ref HAL/7/10

HERTFORDSHIRE. Applications and System Designers to work on a variety of Industrial and Defence Applications. A programming background in Coral would be ideal. Ref HAL/8/10

BEDFORDSHIRE. Digital Signal Processing Engineers with experience of 8080 Microprocessor Hardware Design ★ High Speed Digital Logic Design ★ Digital Communications equipment design ★ Digital Interface Design ★ to work with one of the world leaders in signal processing and satellite communications. Ref HAL/9/10

BERKSHIRE. IBM Mainframe. A leading European consultancy requires a consultant with good experience of CICS, IMS or MVS to install a broad range of software products. Opportunities are excellent as this company has offices throughout Europe. Ref HAL/10/10

BERKSHIRE. 32 Bit Mini Manufacturer (market innovators) has three appointments in different areas of application: (1) with Cobol Compiler expertise, (2) with DMS and/or DBMS skills, (3) with a good knowledge of data dictionaries along with some Cobol. Ref HAL/11/10

SUSSEX. Simulation, Visual Systems, Display, Optics and Defence. Why not test your skills to the limit and work on very exciting and decidedly futuristic projects. We have four similar client requirements; all are working in different areas of development, so if you have expertise in any of the following please get in touch right away. CAD ★ CMOS/TTL Circuity ★ CCTV CAMERAS ★ 8086 PROCESSORS ★ DEC VAX or PDP 11s ★ CORAL FORTRAN ORASSEMBLER. Ref HAL/12/10

SUSSEX. ★ Robotic Systems ★ CNC Machine Systems ★ Auto Assembly Machines. An exciting new project requiring an all-round individual with the above specialist skills to support sales and marketing personnel, specifically in the area of Robotic Applications. Ref HAL/13/10

LONDON/OVERSEAS. A choice of companies based in Central London with overseas outlets, are seeking talented individuals with a degree and good software development skills using high level languages. Projects are wide and varied from Process Control Defence, Micro Systems Development to In-House Projects and On-Site applications. Ref HAL/14/10

HOLLAND. ★ Systems Software ★ PDP 11/VAX Op Systems ★ Pascal Fortran. Dynamic Software and Systems Engineering Consultancy with offices in London and The Hague require talented individuals with expertise particularly in the above, and a working knowledge of market-leading product ranges, i.e. IBM ★ HP ★ CDC. A Degree or related discipline essential. Ref HAL/15/10

ANALYST/PROGRAMMER RPG II/IBM SYSTEM 34

Salary neg. + car after qualifying period

Tangent Computer Services Ltd., a highly successful international software house, require a young, self-motivated and ambitious individual to be responsible for the development of internal systems and the day-to-day management of their in-house IBM computer.

The successful applicant will have a minimum of three years' RPGII/System 34 experience - a knowledge of COBOL would be an advantage.

In addition to an attractive negotiable salary, the usual company fringe benefits apply.

Please reply to: Ken Say, Head of Group Resources Division, Tangent Computer Services Ltd., 102/106 South Street, Romford, Essex. Tel: Romford (0708) 750201.

(1471)

The whole of your future in software can be expressed as a simple sequence of digits.

01-439 8641

TODAY THURSDAY 28th OCTOBER 12 NOON - 8 p.m.

If you're thinking about what happens next in your career, you could find the answer in this simple sequence of digits. It's a phone number, of course, one which will connect Software Specialists with a company right at the heart of a number of complex projects with both military and civil applications.

A company which has one of the biggest software centres in Europe and is breaking new ground in advanced real-time data handling and display systems, involving mini and microcomputer applications packages, standard software, compilers and operating systems.

A company in which professional men and women can find new challenges for years to come, in one of these roles:

DESIGNER ENGINEER PROGRAMMER

Before you reach for the 'phone, we'd just like to be sure that your experience includes mini/microcomputers, multi-access and real-time systems, and that your qualifications include a degree or equivalent.

If they do then all you have to do is ring us TODAY THURSDAY 28TH OCTOBER on 01-439 8641 between 12 NOON - 8 P.M. and tell us about yourself.

If you are unable to ring us today, send brief career and personal details to Confidential Reply Service, Ref BBT 8541, Austin Knight Limited, London, W1A 1DS.

Applications are forwarded to the client concerned, therefore companies in which you are not interested should be listed in a covering letter to the Confidential Reply Supervisor.

Edmund Howard & Partners

5 Brighton Road, Surbiton, Surrey, England. Tel - 01 399 9183

EXCELLENT CONTRACTING OPPORTUNITIES

Our immediate domestic and international consulting needs are detailed below. If you are of a professional disposition, skilled and dedicated, and wish to join our growing permanent or contract staff, please contact us in respect of these and future opportunities.

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Assembler, CICS Programmers

USA

COBOL, OS, TSO/SPF Analyst/Programmers

USA

TPMS, IDMS or Telecommunications exp.

useful - French speaking

FOCUS, RAMIS Systems Engineers

Belgium

Programmers

USA

UK COBOL, IMS, DB/DC ADP Programmers, Analysts/Programmers

USA

COBOL, MARK IV,

Datapoint, RPG III, S38 Team Leader

Programmer, Analyst/Programmers

BASIC, BASIC + 2, FORTRAN, TDP, RSTS/C Programmers/Analysts

COBOL or Assembler, PHMS P7000

IBM Series 1 RPGs Analyst/Programmer

Programmers

BASIC Phillips P7000 APL

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DEC VAX

Programmer

DEC VAX 11, BASIC Analyst/Programmers

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THE LAW SOCIETY LEGAL AID COMPUTER MANAGER

£1,642-£1,780

The Legal Aid Department of The Law Society require a computer manager for their central installation in London. The equipment is a UNIVAC 90/40 and is used for extensive file maintenance, accounting, bill paying, payroll and statistics. Fifteen area offices pass information to the centre for data preparation prior to input. Development plans include distributed processing with communication links to the centre.

Applicants, male or female, should be about 40 or under and have wide experience in all aspects of computer management, including communications. Shortly after joining, the successful applicant will be required to participate in a fundamental review of the existing central office system which may lead to radical changes.

Conditions of service are attractive and include 23 working days leave, and a public sector linked superannuation scheme.

Depending on age and experience an appointment will be made within the above salary range, not necessarily at the minimum.

Applications with precise details including dates covering education, qualifications, and career and salary levels should be addressed to the Personnel Manager, The Law Society's Hall, 138 Chancery Lane, London WC2A 1PL to arrive not later than the 11th November, 1982.

Further particulars may be obtained from the Personnel Manager, The Law Society's Hall, 138 Chancery Lane, London WC2A 1PL or from the University Library, Palace Green, Durham DH1 3RL, to whom applications (one copy only) should be sent by November 22, 1982.

(1416)

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Excellent prospects. (C57)

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Degrees not necessary. (C512)

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PROGRAMMER (Car supplied) Top job - in market burst, highly rated - Assembler systems programing. (C542)

PROGRAMMER (Looking for advancement)

Systems house will pay well immediately - give staff of seven - your chance to run a team. (C544)

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PROGS & AN/PROGS **£10,000**
HP 3000
 Rapidly expanding site in C. London seeks programmers and analysts/programmers to enhance their existing team. Applicants must have a minimum of 18 months' HP 3000 experience and can expect considerable client contact. Programming language is immaterial but full training in the latest HP systems will be given. Excellent career prospects are assured for the successful candidates.

SALES SUPPORT **c £11,000**
 International Company based in C. London requires analysts/programmers to work in sales support areas. A solid DP background is essential together with a good academic record. Experience in the financial sector would be useful as would knowledge of INTEL equipment.

PROGRAMMER/ANALYST **£9,000**
ICL COBOL
 Large ICL user based in North Surrey is seeking to recruit several programmer/analysts to complement its existing VME development teams. Applicants should have a minimum of 18 months' VME/B COBOL and should be familiar with either IDMS database or on-line programming techniques. Usual large company benefits apply.

This is just a small selection of current requirements: for details of these and others not advertised call us now.

APEX COMPUTER RECRUITMENT LTD

LONDON
 59 Gray's Inn Road
 London WC1X 8TL
 Tel: 01-404 4821, 24 hrs.

PROGRAMMER **£10,000**
HONEYWELL
 Prestigious company in C. London requires a programmer with a minimum of 18 months' Honeywell Cobol experience. Applicants should be familiar with commercial applications and have a working knowledge of TDS on-line techniques. An excellent salary package is offered together with a preferential mortgage and other large company benefits.

PROGRAMMER **£8,500+**
RPG SVS 38 TRAINING
 North Surrey based company has identified a requirement for an RPG programmer. They have been a SVS 38 user for a year and are prepared to give the necessary training to existing RPG programmers. The minimum requirement is 1½ years' RPG, preferably from a SVS 34 environment. As well as SVS 38 RPG III training the client encourages early exposure to systems.

ANALYST/PROGRAMMER **£10,000**
 Engineering company located in C. London requires an analyst/programmer with a strong commercial COBOL background. The position is based in the management services team of five people. The minimum requirement is two years' COBOL with a good understanding of accounting systems. There is a lot of user liaison and therefore applicants should have good communication skills.

STOP PRESS ***
 ICL VME/B ANALYST/PROGS FOR LUXEMBOURG.
 £15,000+++ 4 years' COBOL plus good analysis exp.

PROGRAMMER **£8,000**
BASIC/RSTSE
 A systems house specialising in DEC systems has a requirement for two BASIC + programmers. Applicants should have around 18 months' BASIC gained in any commercial environment. This is an ideal opportunity for programmers to move on to VAX systems as the client is installing several VAX machines.

DATABASE PROGRAMMER **c £11,000**
UNIVAC

Well known company in London requires a database programmer to supplement their established team. A thorough knowledge of DMS 1100 and COBOL is required as the position carries the status of senior programmer. Although there are expansion plans a degree of maintenance is expected. Applicants should have a professional outlook and attitude.

PROGRAMMER **£10,500**
CTL COBOL, CORAL

International bank in the City require an experienced programmer for their team. The prime requirement for this position is a minimum of one year's programming on CTL hardware together with two years' experience of financial systems and packages. Usual banking benefits apply for this position.

STOP PRESS ***
 ICL VME/B ANALYST/PROGS FOR LUXEMBOURG.
 £15,000+++ 4 years' COBOL plus good analysis exp.

Computer Staff

British Aerospace requires additional experienced Computer Staff to assist in meeting an expanding air force data-processing requirement in Saudi Arabia. Successful applicants will take part in the definition of project and system objectives, feasibility studies, construction of system specifications, and development of systems through to implementation. Existing installations include IBM 370 Series and IBM 4300 Series.

This is an opportunity to earn a high tax-free salary, with assured annual increments, as a Computer Specialist...

...working in Saudi Arabia with BRITISH AEROSPACE

Ideally, candidates will have several years' experience in data-processing, including knowledge of MVS, COBOL and systems analysis. Experience in data base applications and knowledge of IMS DB/DC will be major advantages. Preference will be given to ex-Service applicants.

In addition to the attractive tax-free salary, successful candidates will receive free accommodation, messing and medical care and other benefits, including generous travel-paid UK leave.

Please apply in writing giving brief details of appropriate experience or telephone Preston 63333 Ext. 125.

Mr. D. Tully, Senior Personnel Officer, Dept. 057/CW
 Saudi Arabia Support Department,
 FREEPOST, British Aerospace Aircraft Group,
 Warton Division, Warton Aerodrome,
 Preston, Lancs. PR4 1LA.

CLOSING DATE: 12th November 1982.
 (1457)

The Polytechnic of Wales

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(1458)

THE POLYTECHNIC OF WALES
 COMPUTER CENTRE
 Computer Centre
SYSTEMS PROGRAMMER
 AP2/3/4/5

SALARY: £5,654 - £7,876 per annum inc (currently under review)

Applications are invited for the above post for which the following qualifications are required:

The Computer Centre provides a service to all Departments and surrounding colleges using DECSystem-20 mainframe computers supporting up to 64 interactive users. In addition there is a range of minicomputers and microcomputers. Languages available are FORTRAN, COBOL, BASIC and MACRO.

The successful applicant can expect a variety of work in pleasant surroundings.

Further particulars and application forms may be obtained from: The Personnel Office, The Polytechnic of Wales, PONTYPRIDD, Mid Glamorgan CF37 1DL. Telephone: (0443) 408133 ext. 201.

CLOSING DATE: 12th November 1982.
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(1459)

MAJOR NEW INSTALLATION

Key Operations Assistance Limited has been retained by a leading international finance group to assist in the recruitment of computer personnel for their new IBM 4341 installation based in South London. We are seeking applications from highly skilled individuals in the following areas:

SHIFT MANAGERS

- 5 yrs in-depth IBM DOS/OS experience
- Previous system experience
- Exposure to advanced communications networks
- Career orientated
- Project Management Skills

SHIFT LEADERS

- 3 yrs in depth IBM DOS/OS background
- Previous training experience
- Exposure to network control
- Management potential
- Career orientated

PROGRAMMER/ANALYSTS

- 3 yrs IBM COBOL & CICS experience
- Previous program development background
- Exposure to electronic banking advantageous
- Project Management potential
- Career orientated

PROGRAMMERS

- 2 yrs IBM COBOL
- Knowledge of CICS VTAM & TCAM preferred
- Previous experience of on-line & real time environment
- Career orientated

THE ABOVE POSITIONS OFFER A TRULY EXCITING STEP INTO 1983 WITH A COMPANY RENOWNED IN THE FINANCE WORLD FOR ITS INNOVATIVE DEVELOPMENTS IN THE FIELD OF COMPUTER TECHNOLOGY.

The HIGHLY COMPETITIVE and GENEROUS salaries offered are complemented by an EXCELLENT benefit package which includes: Mortgage facility, personal loans, free Bupa, non-contributory pension scheme, free restaurant, active social club and car plan facility (applicable to certain grades only.)
 We strongly recommend your early application in respect of those positions to JILL MCGILL and KATHARINE LYON.

KEY SPECIALIST COMPUTER RECRUITMENT CONSULTANTS
 72, Dean Street, London W1.
 Telephone: 01-439 7551

(1460)

K.W.

SENIOR RECRUITMENT CONSULTANTS

LONDON AND WORCESTER

MKA Personnel can point to an extremely successful record of achievement over the past four years, and we are now seeking to implement our next important level of growth with the addition of new offices in London.

Two Senior Consultants are required for our new LONDON base - they will be actively involved in setting up this new branch office. In addition, a Consultant is required to augment the team at our WORCESTER head office.

Candidates should have a comprehensive knowledge of the market place, including one or more of:

- Computer Manufacturers/Suppliers/OEMs
- Consultancies/Bureaux
- Users
- Contract staff

either in the field of recruitment; or as current senior employees in the above.

The rewards are flexible and attractive in a challenging and professional role, coupled with excellent opportunities for career development, both in Worcester and London, based on personal success. The overall package can be negotiated dependent upon individual circumstances.

Please telephone in confidence, either Don Knaggs, Managing Director, or Jeff Bowman, Director, at our offices:

MKA PERSONNEL LIMITED
 SHADES HOUSE
 MEALCHEAP STREET
 WORCESTER WR1 2DD

Telephone: 0905 28468

Don Knaggs

(Home) 0299 400077

Jeff Bowman
 (Home) 0284 3477

(1461)

HARDWARE/ SOFTWARE SALES

LONDON c. £15,000

Our client is a well-established software house and is currently looking to recruit a salesman to promote complete systems to companies in the fashion trade.

The ideal candidate should not only have an interest in new computer technology but want to get involved in selling systems and managing pre- and post-sales support. A good knowledge of computer applications would be an advantage but specific fashion industry training will be given. Candidates will be self motivated, have the ability to communicate at all levels and compete in a dynamic fast-moving market place.

A good basic salary and attractive commission scheme would ensure that the successful applicant can expect to earn in excess of £15,000 per annum in their first year.

For more details please contact Dave Bowman.

APEX COMPUTER RECRUITMENT LTD.

LONDON OFFICE
 59 Gray's Inn Road
 London WC1X 8TL
 Tel: 01-404 4821 24 hrs.

ANALYST/ PROGRAMMER

MIDDX HP 3000 c. £9,500
 + CAR

Our Client, a well-known company in the retail business, wishes to recruit an experienced Analyst/Programmer. They are an established computer user and have a variety of applications running on their HP 3000 with major developments planned for the future.

Applicants will ideally have a sound DP background to include around 3 years' COBOL programming and an in-depth knowledge of Hewlett-Packard systems and software. The successful candidate would shortly assume the position of Assistant Computer Manager and should therefore be able to communicate at all levels. In return our Client offers an excellent starting salary and package, which includes a company car and N.C.P.S.

If you are self motivated, looking for a challenge and would enjoy working in a small friendly team environment contact MIKE HARMER at APEX for further details.

APEX COMPUTER RECRUITMENT LTD.

(1453)

LONDON OFFICE
 59 Gray's Inn Road
 London WC1X 8TL
 Tel: 01-404 4821 24 hrs.

BRUSSELS OFFICE
 Rue Gatti de Gamond
 Uccle 1080 Brussels
 Tel: 010 322 377 4913

(1454)

SENIOR SYSTEMS ANALYST/PROGRAMMER

Salary within Grade: £61,681-198,733 (Award pending)
 (additional computer duties allowance may be payable)

Applicants for the post should have four/five years' experience in analysis/programming work. Previous local government experience would be an advantage. Computer in the Data Processing Section.

The successful applicant will be part of a small but progressive team servicing a wide variety of financial and UNIVAC System 80 Computer.

Consideration will be given to the provision of temporary housing accommodation and legal fees and removal expenses are payable in appropriate cases.

Application form and job description may be obtained from the Personnel Officer, Greater Glasgow Health Board, 381 Sauchiehall Street, Glasgow, G2 3JT. To whom completed forms should be returned, not later than Friday, November 19, 1982.

(1462)

GREATER GLASGOW HEALTH BOARD

BASIC SYSTEMS DESIGNER

28884-28147 per annum (increase pending)

(additional computer duties allowance may be payable)

Applications are invited from suitably qualified and experienced persons for the above post in the Board's Computer Centre. The centre is located at 27 Park Circus, Glasgow, but will move to new accommodation in Bath Street in the near future.

Candidates should have had relevant experience and a good educational background.

The Board currently uses an ICL 1903T computer and is in the process of replacing it with a large ICL 2981 Installation. The equipment change offers an additional challenge to the successful candidate.

Application form and job description may be obtained from the Personnel Officer, Greater Glasgow Health Board, 381 Sauchiehall Street, Glasgow, G2 3JT. To whom completed forms should be returned, not later than Friday, November 19, 1982.

(1463)



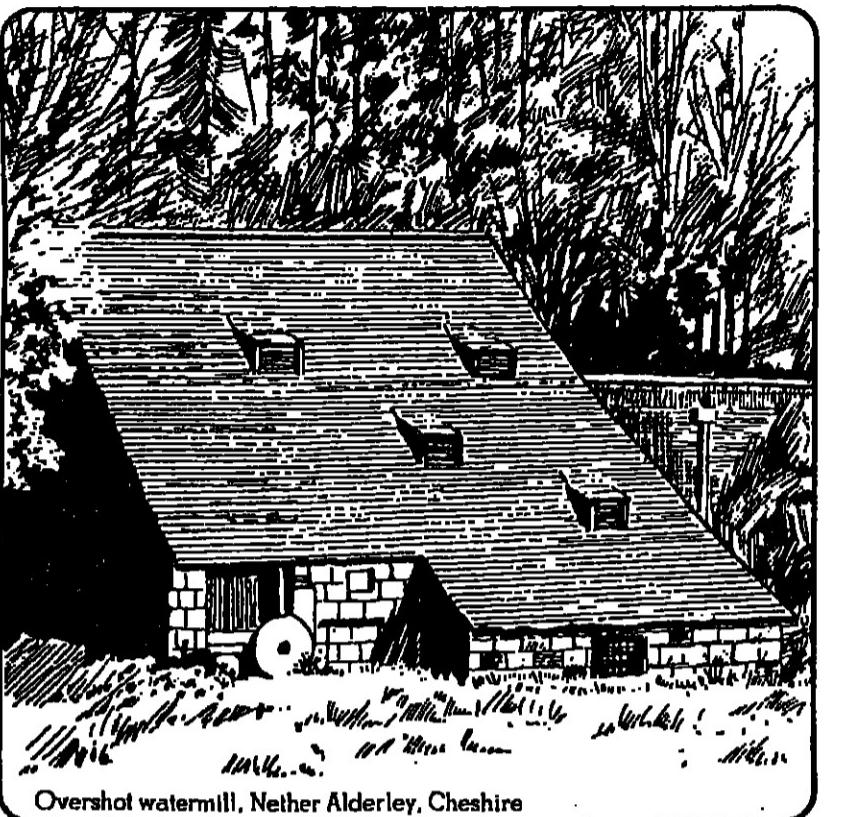
Computing
Services
Association

(1464)



Pharmaceuticals Division

Systems Analysts



Overshot watermill, Nether Alderley, Cheshire

**Alderley Edge
Rural
Cheshire
to £13,000
+ benefits**

BACKGROUND

ICI Pharmaceuticals is one of the leading discoverers of new medicines and health care products. At its Research and Development complex in Alderley Park an extensive R & D programme is supported by an advanced and comprehensive computer centre which covers a wide range of applications from scientific study management to information processing.

THE POSITIONS

There are vacancies at varying levels for well qualified systems analysts to be involved in defining, developing and implementing systems in support of the Divisions Commercial, Clinical and Medical functions. Projects will embrace integrated data management and the use of mainframe, mini and micro computers. Candidates would be expected to make a major contribution to overall project management in a highly qualified scientific user environment.

EXPERIENCE

For the more junior positions at least three years' systems analysis experience with involvement in the implementation stages of a major project is required. Flexibility, creativity and the ability to work as part of a team are essential personal characteristics. A science based degree and database systems experience would also be advantageous.

BENEFITS

In addition to the salary other benefits include up to five weeks' holidays, profit sharing and bonus payments, an attractive relocation package and good career prospects.

Specialists since
1971 in UK and
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OCC Computer Personnel
5 Hospital Street
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Cheshire
(0270) 627 206

If you would like to discuss these opportunities in more detail please ring Tony Roberts on 0270 627 206 during the day or 0270 624 058 evenings and weekends, or write enclosing details to the Nantwich address.

URGENT CONTRACTS

IBM MVS Mark IV
VAX/CORAL 66
IBM SYS 34 (overseas contracts)
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HP2000/COBOL
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Z80/RM 3807 Expert
DG MV 8000 FORTRAN (Seismic)

NOV. START
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NOW
NOW

**WEST LAMBETH
HEALTH AUTHORITY
ST. THOMAS' HOSPITAL
LONDON SE1 7EH**

COMPUTER OPERATOR

Salary Scales £5,586-£6,582 (inclusive of London Weighting and Shift Allowance).

The Sharpay Schuster Centre specialises in health care management and rapidly expanding computer services. It provides a service via an extensive terminal network to West Lambeth Health District using Honeywell Sigma 8 and Prime 300 Computers.

Applicants must be prepared to take considerable responsibility and to appreciate the principles of the system and software in use. Experience of Sigma/Prime equipment is not essential, but knowledge of a terminal network would be an advantage.

Application forms and further details can be obtained by phoning the Personnel Department on 01-223 9222 Ext. 2522.

Closing date for completed application forms 12th November, 1982.

Systems and Programming Staff

required by Britain's leading property company

Land Securities (Management) Ltd., the leading property company, is in the process of developing and implementing a range of new computer systems. These are based on a dual Honeywell DPS7/Level 64 installation which is linked to a network of terminals in the Head Office and Regional Offices and utilises TDS and IDS II software.

Further development staff are required and applications for the following vacancies are invited from men and women who have had experience of working in an on-line commercial environment preferably with similar Honeywell equipment. The possession of a degree or appropriate professional qualification would be an advantage.

ANALYSTS experienced in the identification of user requirements at the business level and the translation of such requirements into effective computer systems.

A SYSTEMS PROGRAMMER who, in addition to installing, configuring and tailoring system software, will provide advice in its use to both development staff and end users.

ANALYST PROGRAMMERS AND PROGRAMMERS

preferably with upwards of two years' experience of the specification and/or programming of computer systems. Consideration will also be given to recent graduates with a good degree in a numerate subject who wish to make a career in the commercial application of computers.

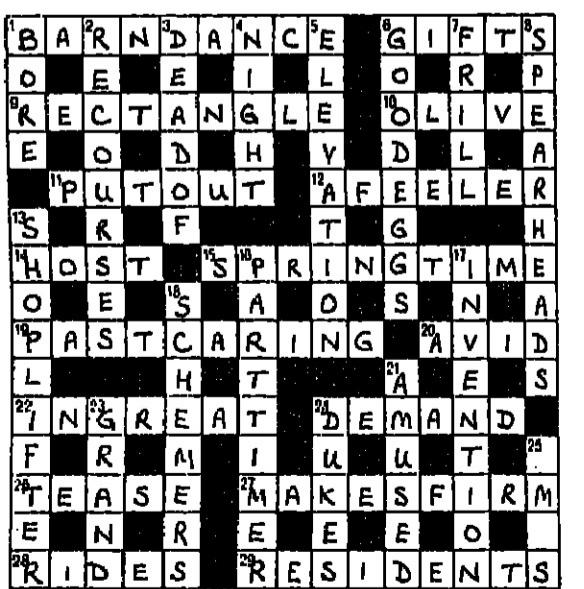
Salaries will be commensurate with experience and qualifications. Other benefits include a non-contributory pension scheme, annual bonus, a share participation scheme and free BUPA and restaurant facilities.

Please apply with brief details of qualifications and experience to:

Management Services Manager
Land Securities (Management) Limited
Landsec House, 21 New Fetter Lane, LONDON EC4P 4PY

CROSSWORD

Solution to Prize Crossword No. 33



OUR £10 prize for October was won by John Edwards, a systems engineer with IBM, at Welwyn Garden City. Gordon Smith, a statistician at Torry Research Station in Aberdeen, and Jim McGarick, a research assistant in the dental physiology department at St George's Hospital Medical School London, won £5 each.



Hughes Richards & Harvey
Computer Services Limited

119 HIGH ROAD, ALTON, HAMPSHIRE

(1423)

LONDON SCHOOL OF HYGIENE &
TROPICAL MEDICINE
(University of London)
Keppel Street/Gower Street,
London, WC1E 7HT

COMPUTER PROGRAMMER

Pre-School Child Growth Survey

The survey requires a graduate computer programmer for an appointment, up to 30% part-time, for a period of approximately 12 months. The successful applicant will be a member of a small team in the Department of Nutrition and Epidemiology. Duties will initially involve preparation of handling packages such as BPSS6, a statistical qualification will be an advantage. Salary £7,207 to £12,457 depending on qualifications and experience. A week's holiday is allowed per annum.

Applications, with full curriculum vitae and naming two referees, to the Assistant Secretary by 1st November 1982.

(1464)

THE UNIVERSITY OF LEEDS
DEPARTMENT OF
APPLIED MATHEMATICAL
STUDIES

Applications are invited for the post of COMPUTER OFFICER in the above department. Candidates should have a degree in a relevant subject shortly to possess a Ph.D. in a science branch of science or engineering relevant to the Departmental interests. Knowledge of the theory and practice of continuum mechanics, astrophysics, mathematical physics, and numerical analysis is desirable. The appointment will be made for a fixed period of up to one year.

Salary at an appropriate point on the IA scale for Research and Analysis (£2592-C1110), according to age, qualifications and experience.

Further information on this post can be obtained from the Head of Department, Dr J. C. G. Hunt, 22 Goldsmiths' Row, London EC2V 4EP (01-371-781 ext 8332).

Application forms and further particulars may be obtained from the Registrar, The University, Leeds LS2 9JT, quoting reference 1423, Closing date for applications 11 November 1982.

(1464)

Database - Point of Sale - UK Network

Five Figure Salary + Car

The continued structured expansion within the DP function associated with Europe's fastest growing furniture retailer, necessitates the appointment of a Systems professional capable of supporting the Company's long term software strategy.

This unique position within a truly sophisticated on-line environment, affords the successful applicant the opportunity of not only enhancing their technical skills and aspirations, but at the same time, making a direct impact on all software maintenance/development from the outset.

The installation at present houses an impressive array of DEC computers running under both RSX11M+ and RSTS/E; all retail systems software being written in MACRO 11.

Successful applicants should possess a thorough understanding of the above language, together with an indepth knowledge of RSX11M+ or M. A working knowledge of FORTRAN would also be advantageous, but is not essential.

Committed to a career in systems programming, candidates must not only want and be able to meet Client deadlines with the minimum of supervision, but also exhibit a positive yet flexible attitude to their work.

In return the Company offers a competitive five figure starting salary plus car, together with an extensive benefits package. Relocation assistance will be provided where necessary.

For further information please contact ADRIAN HARDY, on 01 935 0671 (24 hour answering service) or Ashford, Middlesex (07842) 46026 (evenings and weekends), or alternatively furnish him with a comprehensive Curriculum Vitae at the London

**Senior
Software
Programmer**

MFI
Wembley

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021-236 3781

NORTH
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Manchester M3 2ER
061-833 0427

BELGIUM
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010 322-760947

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Willemsparkweg 92,
1011 M. Amsterdam
010 312-760947

Recruitment
Limited

Here's an excellent opportunity to join the computer arm of an internationally recognised Group.

Extel Computing Limited offers a wide range of computerised investment information, accounting and taxation services to the securities industry and its professional advisers world-wide. It's a demanding area and one which calls for a high level of talent, experience and professionalism.

If you're confident that you possess those qualities, you should be at least in your late 20's with a minimum of 5 years' IBM background, 3 years' systems programming experience, a sound working knowledge of DOS/VSE, CICS, COBOL, Assembler and, ideally, a Computer Science degree. Effective communication skills are vital, as is a methodical approach.

Reporting to the Technical Services Manager, you'll manage the Technical Support Department, heading up a compact team. Without going into exhaustive detail, your primary task is to implement and maintain an environment in which Extel Computing's services can be efficiently developed and operated. The installation consists of multiple 4341's, Series/1 supporting a network of over 175 terminals.

Your efforts will be well rewarded by a generous salary and prospects are similarly attractive. To find out more, please contact Richard Nash on 01 734 9723 or 01 581 5829 (evenings and weekends).

TECHNICAL SUPPORT MANAGER

London • c.£17,000

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Extel

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